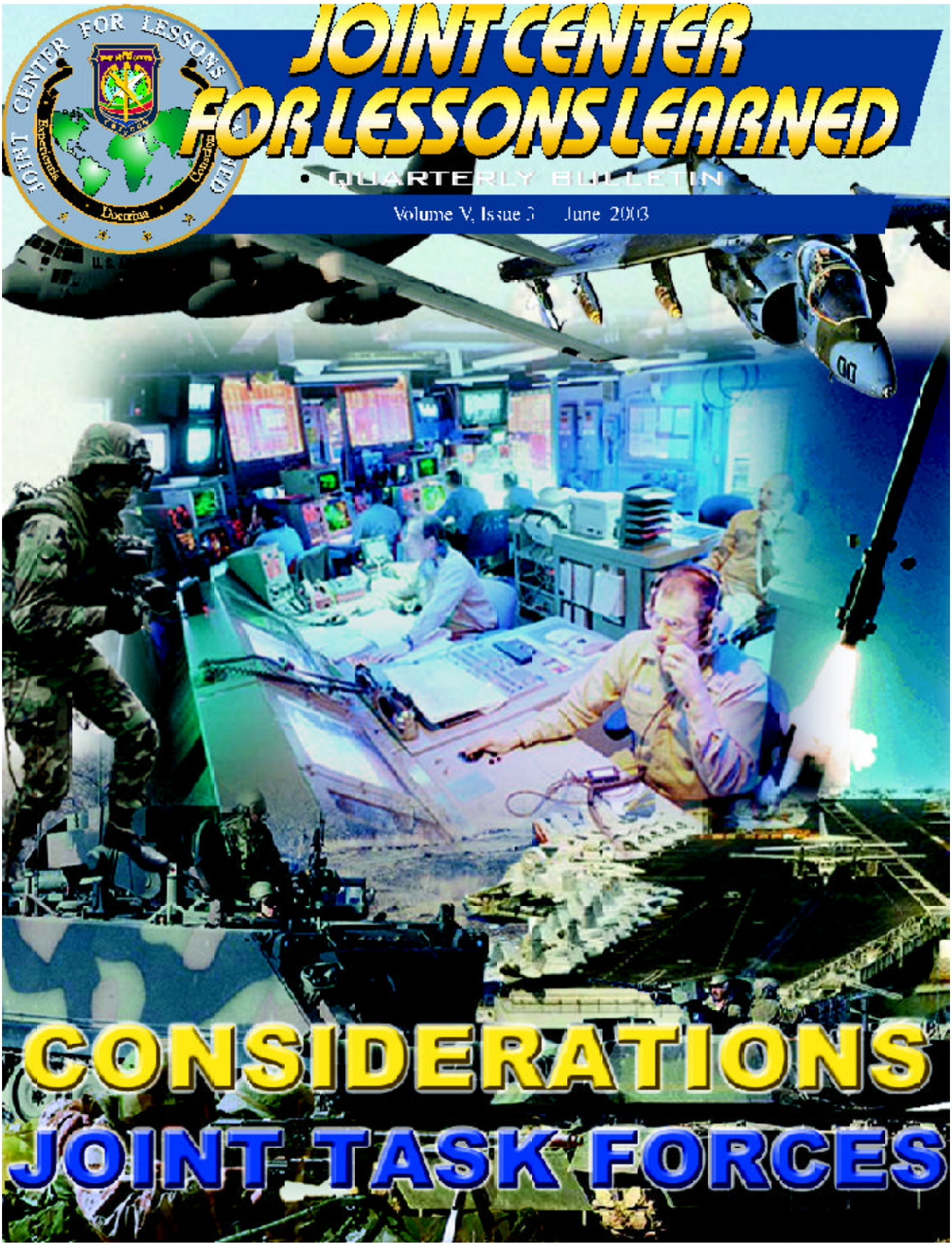
JOINT CENTER FOR LESSONS LEARNED

• QUARTERLY BULLETIN •

Volume V, Issue 3 June 2003



CONSIDERATIONS JOINT TASK FORCES

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JUN 2003	**N/A**	**-**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Considerations Joint Task Forces Joint Center for Lessons Learned Quarterly Bulletin Volume V, Issue 3, June 2003	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **USJFCOM JWFC ATTN: Joint Center for Lessons Learned 116 Lakeview Pkwy Suffolk, VA 23435-2697**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited

13. SUPPLEMENTARY NOTES
The original document contains color images.

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**UU**	**38**	

JWFC Lessons Learned Points of Contact

The JCLL seeks to identify trends, issues, and lessons that impact our Joint Force capability. We rely on the inputs from you in the field. You are in the best position to know and report what may improve Joint Force capability. You work the issue every day, so let us know:

- What was supposed to happen?
- What happened?
- What went right?
- What went wrong?

If you or your unit have an input that could help others do it right the first time, send it to us. Don't wait until you have a polished article. The JCLL can take care of the editing, format, and layout. Do provide a short, one paragraph biography on yourself. We will acknowledge receipt and then work with you to put your article in a publishable form with you as the author.

We want your e-mail address! We now have the capability to electronically disseminate the Bulletin to you when it is published. You can sign up for this service in the Bulletin section of our website listed below. See the inside back cover for details and instructions.

We have a staff ready to serve you. Below are the staff points of contact if you have a question we can help you answer.

Position	**Name**	**Phone** (757) 686–XXXX DSN 668–XXXX FAX – 6057	**E-mail** XXXX@jwfc.jfcom.mil
Director, JCLL	Mike Barker, GS 13	7270	barker
CENTCOM	Bill Gustafson	7570	gustafson
EUCOM	Jim Waldeck	7101	waldeckj
JFCOM	Ed Grogan	6735	grogan
NORTHCOM	Charley Eastman	6045	eastmanc
PACOM	Kevin Denham	7707	denham
SOCOM	Drew Brantley	7158	brantley
SOUTHCOM	Drew Brantley	7158	brantley
STRATCOM	Charley Eastman	6045	eastmanc
TRANSCOM	Bill Gustafson	7570	gustafson
Air Force	Al Preisser	7497	preisser
Army	Walt Brown	7640	walter.brown@ad.jfcom.mil
Navy	Kevin Denham	7707	denham
DIA	Ed Grogan	6735	grogan
DLA	Bill Gustafson	7570	gustafson
DTRA	J. McCollum	7789	mccollumj
FBI	Ed Grogan	6735	grogan
FEMA	Ed Grogan	6735	grogan
NIMA	Ed Grogan	6735	grogan
NSA	Ed Grogan	6735	grogan
Help Line/ Information Services	J. McCollum	7789	mccollumj

You may contact us at the above number, e-mail account, at our office e-mail address which is jcll@jwfc.jfcom.mil, or through our www page at: http://www.jwfc.jfcom.mil/jcll/

Our address is: COMMANDER
USJFCOM JWFC JW4000
116 Lake View Pkwy
Suffolk, VA 23435-2697

Disclaimer

The opinions, conclusions, and recommendations expressed or implied within are those of the contributors and do not necessarily reflect the views of the Department of Defense, USJFCOM, the Joint Warfighting Center, the JCLL, or any other government agency. This product is not a doctrinal publication and is not staffed, but is the perception of those individuals involved in military exercises, activities, and real-world events. The intent is to share knowledge, support discussions, and impart information in an expeditious manner.

Message From the Commander

MajGen Gordon C. Nash, USMC
Commander, JFCOM JWFC

This edition of the Joint Center for Lessons Learned (JCLL) Bulletin is designed to provide some considerations for joint task forces (JTF) and other headquarters. It contains four articles from various sources that give insights into some of the planning factors associated with JTFs, and results of recent events within the Joint Community.

In the first article, ***Effects Assessment – Millenium Challenge '02 and Beyond***, Mr. David Collins, a Senior Military Analyst working with the Joint Forces Command Joint Experimentation Office, discusses the concept, issues, and lessons learned from Millenium Challenge 2002 (MC02). In his capacity as the Effects Assessment Cell Chief during MC02, Mr. Collins has first hand knowledge of the challenges and successes experienced during MC02.

Joint Combat Identification Evaluation Team (JCIET) 2002 – Field Evaluation, gives an overview of the objectives, results, and recommendations from the JCIET 2002 field training event. This event was centered on improving combat identification of hostile forces and minimizing the potential for friendly fire incidents.

The third article, ***Analytic Support for Courses of Action Development During Crisis Action Planning***, discusses course of action (COA) analysis tools available at the operational level of war for crisis action planning (CAP). Mr. Kevin Denham, a military analyst in the Joint Warfighting Center, Analysis Support Branch, provides the results of an in-depth study he conducted on the subject. This study is designed to assist JTF staffs in this important and critical function.

The final article is a compilation of various trends studies in organizing and manning a JTF headquarters. The topics covered in these analysis papers include ***Ad Hoc Staff Manning; Experience Levels of JTF Staff Personnel; JTF Headquarters Standing Operating Procedure and Tactics, Techniques, and Procedures; Integration of JTF Intelligence Assets;*** and, ***Information Management.*** Each of these studies by the Analysis Support Branch involved the investigation and analysis of numerous records within the lessons learned database.

GORDON C. NASH
Major General, U.S. Marine Corps
Commander, Joint Warfighting Center
Director, Joint Training, J7

JCLL UPDATE

Mr. Mike Barker
Director, JCLL

Following 9/11/2001, the Joint Center for Lessons Learned (JCLL) Bulletin has been focused at a specific topic or area of interest. However, over the last 18 months we have also received a number of good articles that, unfortunately, didn't fit in with any of the themes we have focused on thus far. As we were mapping out a long-term publishing sequence, my editor suggested an "olio issue." My first thought was what does margarine have to do with the Bulletin? Once I went to Mr. Webster, it became clear what he was talking about. Olio (not oleo) is defined as a miscellaneous collection, mixture, or hodgepodge. So, in that vain, we are taking a break from a specifically focused Bulletin in order to give due time and space to the authors of the articles you will find in this issue. Since several of the articles deal with lessons from Joint Task Forces, we have titled this Bulletin "Considerations for Joint Task Forces."

During early February, U.S. Joint Forces Command (USJFCOM) was directed to put together and deploy an active data collection to US Central Command's (USCENTCOM) area of responsibility as a precursor to their executing what we now know as Operation IRAQI FREEDOM. By mid March, a team of 30 officers and one senior mentor (GEN(ret) Gary Luck) from USJFCOM and the Institute for Defense Analysis Joint Advanced Warfighting Program (IDA JAWP) led by BG Bob Cone deployed to Qatar, Bahrain, Kuwait, Saudi Arabia (Prince Sultan Air Base), Turkey, and places unknown. This deployment was preceded by numerous phone calls and e-mails between ADM Giambastiani and GEN Franks, and between their respective deputy commanders. This led to a "Terms of Reference" being signed by both commanders that delineated the supported/supporting relationship of this team. In order to have unfettered access to USCENTCOM's staff, this team, including the analysts located at the Joint Warfighting Center, were required to sign a "Letter of Nondisclosure" regarding any information gathered during the conduct of this operation. The end result was a treasure trove of information. The Quick Look Report, first of two major reports, will be released in Jun 03 with the approval of Secretary of Defense Rumsfeld. Keep an eye out on the SIPRNET at USJFCOM's Knowledge Today Homepage or JCLL's web page for this report, and the final report to be released in Aug 03.

In every issue we place an invitation for articles that address issues and lessons toward a specific focus area. What we are looking at as a tentative schedule is Sep 03, Standing Joint Force Headquarters (SJFHQ); Dec 03, Joint Task Force Civil Support; and, Mar 04, Special Operations. There will also be a future issue devoted to papers written by students from the Joint Forces Staff College. Finally, I'm talking with the Liaison Officer of the ABCA (American, British, Canadian, and Australian Armies Standardization Program) looking into the feasibility of getting enough articles to have an issue devoted to our multinational/coalition partners. With this information in mind, if anyone is looking to see his or her name in print, please contact Mr. Al Preisser, the Bulletin Editor, or myself.

"The old saying 'live and learn' must be reversed in war, for there we 'learn and live'; otherwise, we die." US War Department 1945

Contents

Effects Assessment – Millennium Challenge '02 and Beyond

Mr. David B. Collins
Senior Military Analyst

Introduction. The purpose of this article is to provide an overview of the Effects Assessment (EA) concept and EA activities conducted during the execution phase of Millennium Challenge 2002 (MC02). EA was a major experimental aspect of MC02 designed to explore the concepts associated with the planning and assessment of joint task force actions intended to achieve mission-focused desired effects. As such it was developed to assess attainment of effects within the effects based operations (EBO) environment rather than the traditional assessment of tasks performed. What follows is a combination of key issues taken from MC02 EA concept documents and a number of MC02 execution phase personal observations on these issues.

Key Terms. One essential lesson learned from MC02 is the absolute criticality in the wording of EA associated operational terms and issues. Ambiguity in, or imprecise wording of these terms proved to be a continuing challenge throughout MC02. With that in mind, the following are key MC02 EA terms and their definitions/descriptions. Clear understanding of these terms and their relevance to EA is essential in gaining an understanding of the issues discussed in this article.

1) Effects Tasking Order (ETO): In the context of EBO, the ETO is the formal mechanism through which JTF orders are issued. The ETO identifies the JTF's prioritized desired effects, and assigns responsibilities for their attainment to JTF components. The ETO is the primary output of collaborative planning and the vehicle for dissemination of synchronized actions and orders. It replaces both the Air Tasking Order (ATO) and fragmentary orders.

2) Measure of Performance (MOP): MOPs are developed by each JTF component and are the textual statements of how each component assesses its accomplishment of ETO assigned actions.

3) Measure of Effectiveness (MOE): MOEs are expressions of operational-level intentions pertaining to each Commander, Joint Task Force (CJTF) identified desired effect. During MC02 they were developed by the Effects Assessment Cell and provided the framework for the Joint Intelligence Support Element to develop intelligence, surveillance, and reconnaissance (ISR) observable MOE indicators used to assess each MOE, and in turn the desired effect to which each MOE was subordinated.

4) Campaign assessment: In the context of MC02, the campaign assessment was the integration of MOP and MOE assessments plus inputs from other sources such as the Joint Interagency Coordination Group to produce an overall assessment of JTF EBO actions executed within the ETO construct.

5) Operational Net Assessment (ONA): The MC02 ONA was an extensive database designed to provide detailed information on political, military, economic, information, and infrastructure (PMESII) systems of the adversary country as well as detailed analysis of the interrelations of specific nodes contained within these systems. This analytical effort involved determining the contributory value of the targeted node towards achieving the desired effect.

6) Desired Effect: Desired effects are initially developed by ad hoc teams within the Standing Joint Force Headquarters (SJFHQ) staff, and are based on translating mission objectives into desired effects on the adversary across all adversary PMESII systems.

7) Effects Assessment Cell (EAC): The EAC is the JTF staff entity charged with assessment of JTF EBO actions executed through the ETO and the results of their impact in attaining CJTF identified desired effects.

EA Concept. Effects assessment is a key enabler of EBO. As such, it is the JTF commander's primary mechanism to receive information on the JTF's status in attaining ETO desired effects; the operational implications of ETO actions; and assessment regarding the occurrence of undesired effects.

In simple terms, the information used in conducting EA is derived from a hierarchal framework shown in figure one. The mission, as identified by the geographic combatant commander, leads to the development of mission-based objectives (as accomplished in traditional JTF mission analysis). However, in accordance with

the MC02 concept, these mission objectives were then used to determine specific desired effects, the attainment of which would yield mission accomplishment. Analysis of the adversary country's macro systems including PMESII was conducted to identify key system nodes which could be impacted/affected to yield the JTF's desired effects. From that, the desired action was determined (physical destruction, exploitation, interference, etc), and the appropriate resource assigned to accomplish the mission. Thus, the intent of this hierarchal structure was that, during planning, each would derive from the next higher level beginning with mission objectives identified by the geographic combatant commander, through operational-level desired effects (developed by the JTF), to tactical actions/resources (developed by the JTF components). This methodology provides a clear, focused process designed to ensure strong continuity of purpose and unity of effort from the strategic theater-level objectives provided by the geographic combatant commander down to the tactical-level unit executing the mission.

Concept Overview

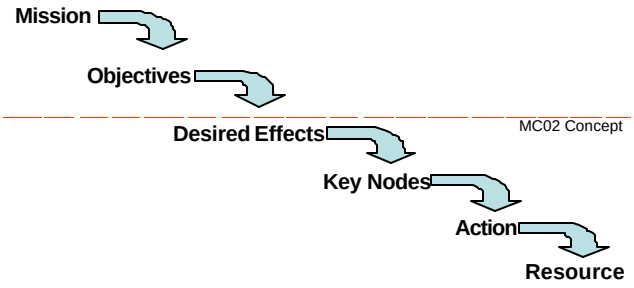


Figure One

EA Organization. There were two significant organizational issues faced by the EAC during MC02. The first was its location within the JTF staff. The EAC was subordinated to the Information Superiority Group, under the intelligence supervisor as shown in Figure Two. While this placement provided excellent opportunities to interact with JTF intelligence staff members, it created a staff perception that EA was an intelligence function. This hindered EAC efforts to gain active, non-intelligence staff participation in EAC deliberations early in the experiment. As a result, significant insights on such issues as the operational relevance or logistical sustainment considerations associated with EAC findings were initially absent from EA products. Conceptually, the EAC is intended to leverage a broad range of subject matter expertise in a very dynamic fashion. Subordination within a functionally focused staff element such as the Information Superiority Group (with its heavy intelligence focus) hinders the rapid realization of this concept.

The second significant organizational issue faced by the EAC centered on the experience level of EAC participants, particularly in terms of joint operations expertise. In general, the depth of operational discussions and analysis conducted by the EAC were insufficient to generate operational-level, high-impact recommendations to empower CJTF decision-making as intended under the EBO concept. This situation was exacerbated by the frequent inability of EAC participants to fully represent their organization in EAC discussions. The need for these participants to take issues back to their respective organizations and present the results in the subsequent EAC session created a 24-hour time lag in EAC process to develop EA driven recommendations for ETO adjustment. The operational significance associated with such recommendations being developed in a very dynamic fashion suggests a need to ensure that EAC participants: 1) are highly knowledgeable of relevant, on-going, and planned tactical and operational-level activities, and 2) are empowered to represent their respective organizations in the development of ETO recommendations for presentation to CJTF as part of the current day's battle rhythm.

ORGANIZATION: JTFHQ

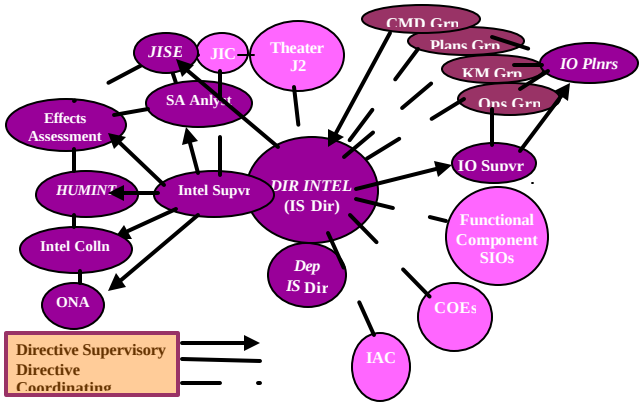


Figure Two

EA Process. Under the experimental concept for MC02, EA was a continuous, dynamic, cyclical process designed to drive current and future operations and inform commander decision-making throughout the JTF life-cycle (see Figure Three).

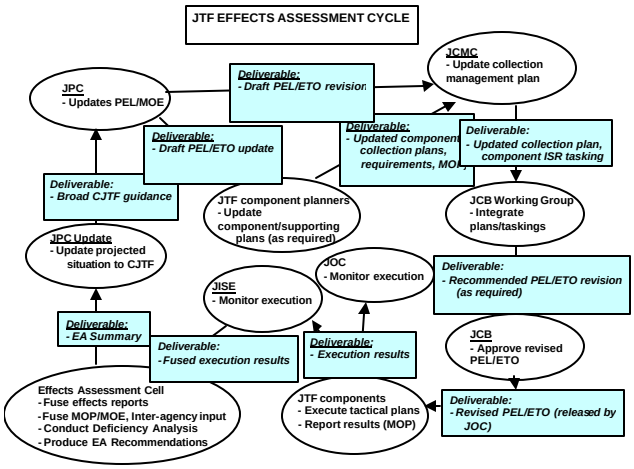


Figure Three

EA Measures of Performance (MOP)

Desired CJTF Effect 823: CJTF-S forces are incapable of threatening access to and within the Gulf and transit passage through the Strait.

Action	Servicing Organ	D	D+1	D+2	D+3	D+4	D+5	D+6	D+7	D+8	D+9	D+10	D+11
ASCM/CDCM storage facilities destroyed	JFMCC	R	R	Y	Y	Y	Y	Y	G	G			
100% of CJTF-S mine laying vessels destroyed	JFMCC	R	R	R	R	R	R	R	Y	G			
CJTF-S subs cannot operate east of Strait	JFMCC	R	R	R	Y	Y	Y	Y	G	G	G	G	G

Figure Four

In the context of EBO, EA went well beyond traditional battlefield damage assessment (BDA) or assessment of individual tactical actions. While these inputs (as understood within the context of combat assessment) provided vital input to the overall effects assessment process, EA included the integrated analysis of other effects contributing to the JTF commander's desired effects, in assessing overall campaign progress (e.g. interagency provided assessments of operationally relevant diplomatic and economic information).

EA Methodology. The methodology to analyze and fuse EA data occurs in a three-tier process. It is important to understand that the MOP and MOE data used at each of these levels are not weighted and are the fundamental building blocks for each of the three tiers.

Tier one analysis addresses each MOP in terms of the specific desired effect to which it is linked. This analysis determines the status of each JTF component MOP as: 1) red, meaning that ETO actions tasked to accomplish the MOP have not been performed; 2) yellow, the ETO tasked actions are being performed but the MOP has not yet been achieved; 3) green, the MOP has been achieved. An example of the results of this process is shown in Figure Four. During MC02 the development of operationally relevant MOP against which EA could be conducted proved to be a significant challenge. The availability of a "standing list" of generic MOP, based on potential JTF mission types would have greatly facilitated the development of component MOP.

Figure Four shows a desired effect that has been tasked to a component for development of tactical actions. The first column of the matrix identifies the component's MOP, or macro standard, which it will achieve in order to attain the desired effect. The second column identifies the JTF component which will execute the tactical actions to achieve the MOP. Finally are a series of columns showing the status in attaining the MOP. These columns reflect the situation on a daily basis. NOTE: An associated letter "R, Y, or G" to indicate the colors red, yellow, or green is shown to aid those readers not having the color version of this text. This system will be used for all color-coded matrices throughout this article. The colored circles represent the historical view and the colored Xs the future projection of the situation. Therefore, what is shown in Figure Four is a historical view of D-day through D+ four, and component (in this case JFMCC) projections for MOP attainment through D+ 11. Circled Xs (as shown on D+ eight) indicate a linkage to a component commander's identified decision point. For both tier one and tier two analysis (discussed in the following paragraph) it is important to understand the transition criteria associated with each of the colors associated with these charts. The shifts from "red" to "yellow" to "green" have operational significance and should link to operational decisions and thresholds (e.g. mission phase transition, branch plan activation, etc). During MC02, maintain-

ing effective situational awareness on these relationships proved to be a difficult challenge.

Tier two EA analysis focuses on the assessment of JTF MOE. Since MOE are, in large part, the anticipated, higher-order results of component tactical actions, the predictive analysis to identify the key anticipated results of tactical actions (as expressed in MOP) bridges to these intended, higher-order results (as expressed in MOE). The methodology used to display the MOE (see Figure Five) is very similar to that described above for MOP.

EA Measures of Effectiveness (MOE)

Desired CJTF Effect 823: CJTF-S forces are incapable of threatening access to and within the Gulf and transit passage through the Strait.

MOE	Key Issue	D	D+1	D+2	D+3	D+4	D+5	D+6	D+7	D+8	D+9	D+10	D+11
CJTF-S naval forces are combat ineffective		R	R	Y	Y	Y	Y	Y	G	G			
CJTF- S anti-shipping missiles are combat ineffective		R	R	R	R	R	R	R	Y	G			
CJTF-S air forces are combat non-operational		R	R	R	Y	Y	Y	Y	G	G	G	G	G

Figure Five

The first column in Figure Five shows the desired effect which the subordinated MOE support. The second column contains any critical issue associated with the attainment of the relevant MOE. The columns to the right consist of incremental assessments using the methodology described for MOP in the paragraph above. It is important to understand that while similar in appearance and certainly related, the substantive information analyzed for tier one and tier two are different. Tier one (MOP) analysis deals very much in terms of classic BDA type information, and as a result has a strong "cause and effect" correlation. Tier two (MOE) analysis involves the less concrete, predictive anticipation of higher-order results of MOP. The direct association or "cause and effect" relationship between MOP and MOE is tenuous at best. The MOE may actually occur, but may or may not be as a result of the MOP actions. Therefore, understanding the cause behind the occurrence of an MOE is always an important aspect of tier two analysis.

Tier two analysis involves a color system that includes: 1) red, meaning that the indicator is being observed, but the desired action/situation had not been achieved; 2) yellow, the MOE is being observed and some progress has been made; 3) green,the MOE is being observed and the desired action/situation has occurred The results of such analysis have obvious ramifications for JTF ISR operations. In addition to the normal ISR planning considerations involved with supporting MOE collection efforts, there are two operationally significant implications for an MOE being assessed as green. First is its relevance to predetermined operational decision points, or said another way, its linkage to the commander's decision support matrix. The second point is the determination whether or not continued observation by ISR resources is required. In some cases determination that a green status on an MOE has been achieved is sufficient. For example, in this instance the associated ISR assets can be shifted to meet other requirements. However, in other cases it is necessary to ensure that the situation as reflected by the green status does not degrade and therefore ISR coverage would be maintained. It is often possible during the planning process to determine which MOE fall into which of these two categories. The results of this analysis should be fed to the JTF ISR planner to aid in long term ISR asset planning.

Tier three analysis is the JTF's overall EA campaign assessment and involves the integration of tier one and tier two results along with other information (including analysis associated with any occurrence of undesired effects). The methodology used by the EAC during MC02 execution reversed the "top down" methodology described in Figure One to employ a "bottom up" process that integrated the results of component tactical actions (MOP); ISR collection results from MOE collection actions; and other inputs (e.g. interagency information) to produce the JTF's campaign assessment (see Figure Six).

Assessment of CJTF Prioritized Effects

	Prioritized Effect	Assess Trend	D	1	2	3	4	5	6	7	8	9	10	11	12
1	CJTF-S forces are incapable of threatening access to and within the Gulf and transit passage through the Strait (E823)	↔	X R	X R	X R	X R	X R	X R	X R	X R	X Y	X Y	X Y	X Y	X G
2	CJTF-S is unable to employ TBM and WME (E836)	↔	X R	X R	X R	X R	X R	X Y	X Y	X Y	X G				
3	CJTF-S forces no longer occupy or militarize disputed islands (E843)	↔	X R	X R	X R	X R	X R	X R	X Y	X Y	X Y	X G			
4	CJTF-S is unable to command and control its forces (E835)	↔	X R	X R	X R	X R	X R	X R	X R	X Y	X Y	X G			
5	Terrorists do not employ WME (E841)	↔	X R	X R	X R	X R	X R	X Y	X Y	X G					
6	CJTF-S cannot control or employ terrorists (E842)	↔	X R	X R	X R	X R	X R	X R	X Y	X Y	X G				
7	Terrorist and pirate groups are incapable of threatening the flow of oil, commerce, and freedom of navigation (E834)	↔	X R	X R	X R	X R	X R	X R	X Y	X Y	X Y	X G			

Figure Six

Column one shows the prioritized desired effect as contained in the JTF's ETO. The next column shows the current trend in attaining the desired effect. An upward arrow indicates an improving situation. A horizontal arrow indicates a static situation, and a downward arrow indicates a worsening situation. Since the matrix shown in figure six shows the opening situation at H-hour (the time an exercise or operation begins), all statuses are shown as red with a horizontal trend arrow. As ISR results provided insights over time on the seven desired effects (through the tier one and tier two analysis efforts), this matrix was updated to reflect the overall changing situation. Under this approach, the tier one (MOP) and tier two (MOE) examples shown in Figures Four and Five respectively became part of the overall assessment for item one (desired effect E823) shown in Figure Six. Likewise, there were other tier one and tier two matrices that fed E823 and the other ETO desired effects to produce the overall campaign assessment shown above. Finally, this chart supported CJTF decision-making by showing not only the progress in attaining each desired effect, but also the time remaining to achieve them (based on the JTF's Joint Planning Cell identified requirements), expressed as color changes in the Xs. The EAC substantive analysis associated with this matrix fed the development of operational recommendations for CJTF consideration within the JBC.

EA Operational Planning Environments. There are a number of underlying principles associated with JTF level EA activities that are fundamental to successful operations. Key among these is the need to understand the operational planning environment in which EA activities are to be conducted. The criticality of this issue is directly linked to commander/staff expectations and the reality of what EA operations can provide. There are three macro models associated with this issue (Figure Seven).

Situational Models

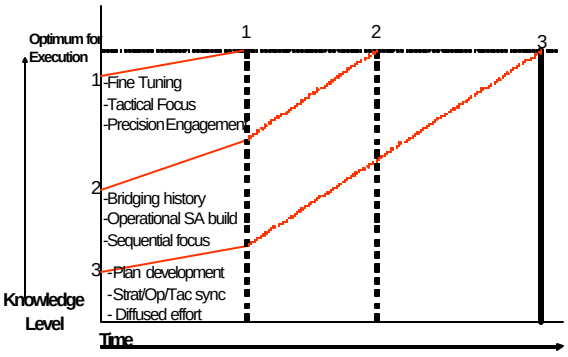


Figure Seven

The first of these three models (and the one employed during MC02) involves an anticipated situation with a well-studied scenario and associated detailed planning documents (to include a mature ONA) available. In this instance much of the analysis conducted by subject matter experts, including that developed via collaborative interaction with Centers of Excellence (COE) representatives, is accomplished throughout the deliberate planning process. Likewise, this model involves the opportunity to develop extensive, detailed databases including the development of mature, System of Systems Analysis (SOSA) relational databases designed to facilitate in-depth EA (e.g. second and third order effect analysis). In this model, the bulk of time-consuming analysis and preparation associated with preparing for mission specific EA has been "front loaded" into the pre-crisis environment through deliberate planning. This enables JTF EA operations to focus on refining and synchronizing these tools rather than on their development. There are a number of positive operational advantages resulting from this situation. For example, EA operations may be expected to have maximum flexibility to effectively support operational plan-

ning and execution; require less "spin-up" time; provide more accurate analysis; be more thoroughly integrated into the staff planning process; and be better positioned to meet the more demanding requirements of RDO within the EBO construct.

The second model shown in Figure Seven results from an emerging crisis for which in-depth deliberate planning effort described above has not been accomplished. It is likely that there are existing "generic" or related planning tools developed in the deliberate planning process that may be leveraged to assist in "jump starting" the JTF's EA effort (e.g. the working relationships previously established between JTF staff members and center of excellence subject matter experts (COE SMEs), etc.). However, there remains a mission–specific planning requirement that results in a significant degree of planning effort shifting from the deliberate planning arena to the crisis action planning domain. This implies degradation in most of the positive planning attributes described in the first model above. The degree to which this is true will be situationally dependent. However, it is important to understand the impact of this reality when developing EA staffing requirements and gaining an understanding of the CJTF's EA expectations and the staff's ability to support those expectations. Finally, it is important to understand the EA tactics, techniques, and procedures (TTP) impact associated with the planning delta between the first and second model. Simply stated, the work being done to accomplish the delta has an associated cost in time and resources since the bulk of this work will be accomplished (or at least managed) by the JTF staff. The processes and procedures to accomplish these tasks are additive to the operational requirement described for the first model.

The final model shown in Figure Seven represents a JTF mission similar to the second model, except that it is a "no-notice" or "fast-breaking" crisis situation. This model should not be confused with a situation in which there are pre-planned contingencies but for which there has been minimal warning. In the third model the weight of the planning effort has shifted even further into crisis action. The impact of this fact is compounded by the general absence of a detailed situational awareness "bridge" provided by the combatant commander staff elements (e.g. Crisis Action Team, or Operational Planning Group) who have tracked the development of the crisis as described for model two. All of the degradation issues mentioned in the paragraph above are further exacerbated by the "fast track" nature of the situation. Overcoming the steep learning curve associated with this model is critical to successful EA. Therefore, robust "reachout/reachback" capabilities are critical EA enablers in this model, particularly during initial mission planning efforts. In this sense, the identification and establishment of the supporting information architecture becomes a major planning consideration. Given the nature of this model, and the relatively high degree of uncertainties, EAC deficiency analysis becomes a major factor for the CJTF's decision-making considerations. It also will contain a larger degree of planning considerations for other staff elements than those contained in the first two models (e.g. equipment deltas, manning requirements, number of requests for information (RFI) generated, etc).

Summary. As an EBO tool, effects assessment requires a significant shift in the JTF's organizational thought process in terms of analytical focus, depth, and comprehension on a wide range of operational issues. The shift from a traditional, task-based assessment methodology to an effects-based assessment mindset involves an increased depth of understanding of the adversary in terms of time, space, and other operational issues. For example, the forethought required to absorb the complexities of PMESII nodal relationships contained in the ONA, and effectively employ its potential in a dynamic operational-level environment demands a depth of analytical effort not normally associated with JTF staff operations. Success in these efforts is largely empowered by a broad range of preparatory actions taken, and analytical energies invested during the deliberate planning phase. Leveraging this preparation during crisis operations, EA provides a structured, focused campaign assessment integrating cross-staff expertise, to produce operationally relevant recommendations. These recommendations then drive JTF operations and thus meet EBO requirements as expressed by the CJTF.

About the author

Mr. Collins is a senior military analyst with the Joint Forces Command, Joint Warfighting Center, Joint Experimentation Standing Joint Task Force. Employed by the Illinois Institute for Technical Research Incorporated, the author served as the Effects Assessment Cell chief during Millennium Challenge 2002 with overall responsibility for effects assessment activities conducted during the MC02 experiment. Mr. Collins is a

retired military intelligence officer with extensive national to tactical joint and combined experience, including over 200 joint, combined, or bilateral real-world and exercise events. The author joined the J9 team in February 2002, following six years with the Joint Warfighting Center, J7 Exercise Analysis Branch, conducting formal analysis of geographic combatant command and joint task force joint, combined, and bilateral operations in the areas of intelligence, information operations, and force protection. Mr. Collins' previous contributions to the JCLL Bulletin include articles on intelligence and information operations.

Editor's Note: I would like to thank Col Brown and the JCIET Team for this outstanding and insightful article. An acronym list is available at the end to assist readers in understanding the abbreviations used throughout the article, and as an easy reference for future use.

Joint Combat Identification Evaluation Team 2002—Field Evaluation

In the Joint battlespace, incompatibility between doctrine; tactics; weapon systems; and Command, Control, Communications, and Intelligence (C3I) architectures can hamper identification of forces. At the same time, long-range smart weapons with first-shot lethality demand rapid and certain Combat Identification (CID) of both friendly and hostile targets. CID, without speed and certainty, can be a significant limiting factor in weapon system employment. The probability of coalition warfare and Joint operations with the accompanying possibility of widespread identity problems with employed forces and equipment underscores the need for positive CID.

Joint Combat Identification Evaluation Team (JCIET), located at Eglin Air Force Base (AFB), Florida, and formerly known as All Service Combat Identification Evaluation Team (ASCIET), has been evaluating CID methods and technologies with the goal of fratricide prevention since October 1994. In October 1999, ASCIET became a subordinate command under the United States Joint Forces Command (USJFCOM), and, a year later, ASCIET became JCIET.

JCIET is chartered by USJFCOM with the following mission:

a. Employ the equipment and personnel of all four Services to evaluate, investigate, and assess Joint integration and interoperability of systems; concepts; capabilities; Tactics, Techniques, and Procedures (TTP); and doctrine that directly affect Combat Identification within the present and future Joint battlespace.

b. Offer Federally Funded Research and Development Centers (FFRDCs), Service battle laboratories, and industry the opportunity to review and evaluate emerging technologies in a Joint environment on a not-to-interfere basis for risk reduction and verification.

c. Coordinate with the USJFCOM staff to maximize use of the JCIET venue by other Joint activities such as the Joint Battle Center (JBC), Joint Warfighting Experimentation Battle Lab (JWEBL), the Single Integrated Air Picture (SIAP) System Engineer (SE) initiative, and Joint Test and Evaluation (JT&E) programs.

d. Serve as the USJFCOM lead for evaluation of CID in the Joint, allied, and coalition arena. JCIET strives to advance the United States (U.S.) warfighting capability by fostering improved Joint CID across all mission areas, and six field exercises, including the last, JCIET 2002, have been conducted to further that advancement. The JCIET commander, U.S. Air Force Colonel Greg Brown, believes the JCIET expertise in CID will enhance the U.S. warfighting capabilities. His comments on the future of JCIET conclude this article.

This article gives an overview of the JCIET 2002 exercise and its results. Explanations of some operations and results, such as Air Defense (AD), are largely classified; therefore, those explanations are not included. For additional and more comprehensive information regarding JCIET 2002, including classified data, contact JCIET.

JCIET 2002 Objectives

USJFCOM provided four overarching objectives for the JCIET 2002 evaluation of CID:

a. Assess overall CID capabilities of currently fielded systems, TTP, and doctrine.

b. Investigate specific issues for CID systems and architectures.

c. Assess improvements for CID systems and architectures.

d. Assess TTP and doctrinal excursions in a Joint tactical environment.

The combatant commanders, Services, and the U.K. developed 236 objectives based, in part, on these four overarching objectives. Because of crossover or redundancy between combatant commander and/or Service objectives, JCIET formulated a single set of *analysis* objectives. Numerous objectives were of a training rather than analytical nature and were designated as Service or U.K. responsibilities. Additionally, JCIET 2002 did not address several Service objectives due to lack of resources, scenario limitations, forces, or participating systems.

JCIET Evaluation Overview

JCIET 2002 took place from 15-26 April 2002 at the Combat Readiness Training Center (CRTC) in Gulfport, Mississippi; Camp Shelby Training Site (CSTS), Mississippi; Eglin AFB, Florida; the Camden Ridge/Pine Hill/De Soto 1 and 2 Military Operating Areas (MOAs); and the Gulf of Mexico air ranges. JCIET developed an instrumented tactical environment in which to evaluate Joint/Combined CID. Within this environment, JCIET stimulated operations to satisfy objectives. However, JCIET did not interfere with the way units chose to operate within this environment. Following each mission, JCIET conducted truth-based debriefs of Joint/Combined CID anomalies and events of interest to further participants' CID training and begin the analysis process.

JCIET evaluations are structured to address current Joint concerns associated with air and ground target CID, and the focus of JCIET 2002 was evaluating the *ID to the shooter* process. The JCIET 2002 priorities, established by USJFCOM, were surface to air/air to air—that is, AD—and air to surface. JCIET 2002 did not evaluate ground combat operations, but used the operations to stimulate Close Air Support (CAS) missions and support instrumentation development and testing. JCIET did evaluate mission effectiveness, and the exercise included both day and night operations.

The JCIET 2002 scenario included AD assets from the U.S. armed services and the United Kingdom (U.K.) in a combined littoral environment. Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) platforms were integrated with Surface-to-Air Missiles (SAMs) and fighters, all supported by a predominantly Link 16-centric data link architecture. A Link 16-equipped Opposing Force (OPFOR) challenged and stressed the Combined Integrated Air Defense System (IADS).

The JCIET 2002 scenario also called for CAS and Time-Sensitive Targeting (TST) operations. A Marine Corps tank company team faced a Marine OPFOR company team in force-on-force maneuver operations. The OPFOR consisted of eight mechanized armor Former Soviet Union (FSU) vehicles (T-72, BVP-80, and BMP2) and 45 dismounts, operating in a 9- x 10-kilometer (km) area. The OPFOR continually reinforced the battle area, and Blue Force (BLUFOR) fixed- and rotary-wing aircraft attacked OPFOR targets. E-8C Joint Surveillance Target Attack Radar System (JSTARS), Unmanned Aerial Vehicles (UAVs), RC-135V/W Rivet Joint, U.K. Nimrod, and other tactical. and national systems provided target detection, location, and ID information.

Former Soviet Union (FSU) equipment, such as the T-72 tank pictured here, provided a viable threat to the Blue Force.

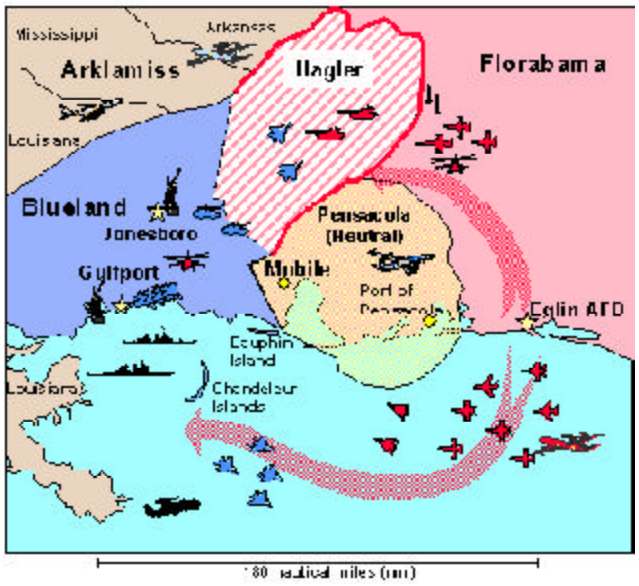
Dismounted troops patrol the operations area.

Addressing CID supporting technologies, which can evolve rapidly and are often highly perishable, JCIET allowed TTP evolution and included online and offline emerging technologies during the evaluation. Online status allowed system integration into the tactical decision-making process as an integral part of the evaluation. Offline status allowed the development community to exercise and evaluate their prototype solutions in the JCIET environment on a noninterference basis.

JCIET 2002 Scenario, Operations, and Results

As depicted in the graphic below, JCIET 2002 Scenario Layout, the AD battle during JCIET 2002 was fought over land and water. Avenger and Patriot units were arrayed throughout the depth of the battlefield.

Two Aegis cruisers and a U.K. frigate operated offshore in the water ranges. Blue Force (BLUFOR) fighter aircraft based at Gulfport CRTC established Combat Air Patrols (CAPs) in designated over-water and over-land airspace. Land and airborne (C2ISR) platforms were positioned as appropriate to defend against OPFOR fixed- and rotary-wing aircraft (F/A-18 Hornet, F-14D Tomcat, J-35 Draken, F-3 Tornado, QF-4 Phantom II, Mi-8 Hip, Mi-24 Hind-D), and cruise missile surrogates (BD-5J and BQM-74E Chuckar) operating out of Mississippi and Florida air bases.



JCIET 2002 Scenario Layout

The USS *Anzio* was one of the two Aegis cruisers that, through their SPY radars, provided the majority of the air tracks in the data link.

The United Kingdom provided a frigate and aircraft, such as this F-3 Tornado.

BLUFOR and OPFOR fought the ground war in maneuver areas on Camp Shelby. BLUFOR CAS assets included Air National Guard (ANG) and Marine fixed- and rotary-wing aircraft. Two Special Operations Forces (SOF) Operational Detachment-Alpha (ODA) teams deployed: One team supported CAS, and the other team performed deep operations to facilitate TST events. A small White Cell performing battalion-level Command and Control (C2) functions and a Joint Special Operations Task Force (JSOTF) cell facilitated the evaluation. To facilitate the CAS scenario, the following three conditions were implicit for JCIET 2002:

a. The requirement for CAS had already been determined.

b. The Fire Support Element (FSE) had received specific targeting instructions from the ground commander.

c. The appropriate air request and allocation coordination had been accomplished.

The Combined Air Operations Center (CAOC) directed TST operations in the Camden Ridge/ Pine Hill MOAs based on a United States Central Command (USCENTCOM) architecture, Concept of Operations (CONOPS), and Rules of Engagement (ROE). TST used information received over tactical communications from actual C2ISR platforms. The CAOC targeted and prosecuted TSTs using attack aircraft and notional Army Tactical Missile System (ATACMS). The scripted OPFOR targets included IADS, surface-to-surface missile systems, helicopters (on the ground), a Tactical Operations Center (TOC), and a convoy.

CAS operations evaluated two promising TTP initiatives: Digital Positive Control (Type 1) and Remote

Positive Control (Type 2). In *digital positive control*, a data link facilitated fighter terminal control in a traditional forward-deployed, "eyes-on" position. In *remote positive control*, a terminal controller employed Intelligence, Surveillance, and Reconnaissance (ISR) "eyes" and data link to control CAS from a rear area.

Advanced Close Air Support System (ACASS) and Situation Awareness Data Link (SADL), two data link technologies, facilitated the TTP initiatives. ACASS and Enhanced Position Location Reporting System (EPLRS)/SADL were chosen because they are the only two data links currently fielded in the air-to-surface operational area. Their use demonstrated the *feasibility* of using data links to facilitate the CAS mission, but they were not *proposed substitutes* for the Department of Defense (DOD)-mandated *Joint* data link solution—Link 16. Current doctrine and TTP do not cover the Types 1 and 2 options, although the draft revision of Joint Publication 3-09.3, *Joint TTP for Close Air Support*, 1 December 1995, addresses them.

Air Officer: most effective source of detections and most prolific source of IDs

The Air Officer in the Generic Operations Center (GOC) was most effective when he was involved from the beginning of the targeting process.

The Air Officer (AO), with the aid of a workstation displaying multiple ISR and Blue Force Tracking (BFT) feeds, was the single most effective source of detections even though he was physically located approximately 50 miles away. The airborne and ground-based terminal controllers combined for approximately one third of the detections. Other sources of potential targets were the JSTARS crew and the actual shooter platforms.

The AO was also the single most prolific source of IDs, making 42 percent of all the IDs. An ID of Enemy or Friend was sufficient to support the decision to engage or not to engage. Of the AO's IDs, 92 percent were of sufficient quality to support an engagement, call off engagement against friendlies thereby preventing fratricide, or abort an engagement when friendlies were "danger close" to the target. Other ID sources included the Forward Air Controller (FAC) Airborne (A)s, who were the second most prolific ID sources, with 20 percent of the IDs, of which 83 percent were sufficient to support an engagement decision. The FAC Ground (G) and the SOF team had eyes on their targets, making 11 percent of the IDs—Visual Identification (VID), and 96 percent of those IDs were sufficient for engagement decisions. Though the fixed-wing shooters made 18 percent of the IDs, only 58 percent of those IDs were sufficient for an engagement decision.

The AO controlled the majority of successful CAS attacks (43 percent) and successfully terminated 73 percent of the potential attacks against friendly forces and targets that were danger close to friendlies. The second most successful control came from the FAC (A)s, who controlled 21 percent of the successful fixed-wing CAS attacks.

Exercising remote positive control, the AO in the GOC was most effective when he was involved from the beginning of the targeting process. The AO workstation was designed to provide the necessary data required to assess the presence of potential targets and then cross reference that information to determine if there were "friendlies" in the area and to assign either a positive or procedural ID to the target. When the process was attempted in reverse—a shooter detected a potential target and then attempted to hand off the responsibility for ID and attack to the AO—the process was less effective; however, Friend IDs from the AO protected eight BLUFOR elements nominated by the shooters or other controllers as targets.

The ACASS positive direct control sorties contribution was relatively small for several reasons. The participants needed to learn and exercise ACASS to identify

shortfalls, develop TTP for use of the system, and overcome shortfalls as they were discovered. Therefore, mission accomplishment was sacrificed to allow for additional ACASS attempts. Also, the Multiband Inter-/Intra-Team Radio (MBITR) planned for use with ACASS was not powerful enough, and substitute radios had to be used. The opportunity for the SOF team to control assets was limited during night operations because the Ruggedized Handheld Computer (RHC) used for ACASS was not Night Vision Goggle (NVG)-compatible.

Flight lead control enabled the AO or other controlling agent to pass clearance and abort authority to the flight leader once the controller was certain the flight was in the designated target area. The initial target area entry was always made with clearance from the AO. This method was relatively effective except when both forces were on the move and the battlefield situation became confusing. The AH-1W helicopters employed in the CAS role used this form of control to successfully detect, identify, and engage with little or no outside information other than situation briefings from the ground unit. Of the rotary-wing CAS attacks, 95 percent were successful. The new Star SAFIRE IIÔ Infrared (IR) imaging capability provided the UH-1N crew with the ability to detect and ID targets at nearly twice the range of the AH-1W.

Data link support for CAS terminal control improved communication. In addition, a radio set dedicated to the data link improved effectiveness (rather than data messages sent by modem over the same radio used for voice communications). In either case, target information went directly into aircraft displays without the possibility of entry errors or misreading coordinates. Once the target was in the aircraft system, the pilot had pointing information to the target. In addition, the SADL system provided feedback to the controller. This Sensor Point of Interest (SPI) was displayed on the SADL Windows Forward Air Controller (WINFAC) and, if superimposed on the intended target, the controller issued clearance to drop with full confidence of mission success.

The lack of data link and data link interoperability among the Services in the Joint CAS mission area, as called for in the Joint CAS Capstone Requirements Document (CRD), is a major impediment to enhanced mission effectiveness. The Joint CAS CRD states: "The [CAS] platform's mission computer will be able to display the weapon's predicted footprint and time to impact for each weapon and transmit the data to the Terminal Controller (TC) to ensure deconfliction. The TC will confirm deconfliction from friendlies. Then, the TC will link 'cleared hot' to the CAS platform, which shows up on the aircrew's TSD [cockpit display(s)], with a confirmation linked from the aircrew to TC." The use of a data link in CAS has been shown to overcome known shortfalls in CAS terminal control processes, specifically the requirements for a target mark and for the terminal controller to visually acquire the attacking aircraft and predict the weapon impact point before issuing final attack clearance.

A Tactical Air Control Party (TACP) provides terminal control to CAS aircraft. The use of a data link has been shown to overcome known shortfalls in CAS terminal Control processes.

During JCIET 2002, the precise aim point of the attacking aircraft was displayed to the terminal controller through a data link. This same display also contained the target location updated using real-time ISR **inputs, enabling** *positive control* without eyes on the attacking aircraft or the target. This digital exchange of target location and aim point information between the aircraft and the terminal controller overcame these deficiencies. However, only two data link systems were available to support CAS mission execution and TTP initiative assessment, the fielded SADL and the prototype ACASS. SADL has a gateway to Link 16 and is currently installed in over 500 ANG F-16s and a single A/0A-10 (test bed). ACASS is a U.S. Marine Corps risk reduction program for future digital CAS solutions and is compatible with most of the Marine Corps AV-8B aircraft. In the meantime, Air Force, Navy, Marine

Corps, and Army aircraft are programmed to become or have become Link 16 capable; however, the earliest Link 16 terminal controller's suite currently scheduled to be fielded is in 2008 as part of the Tactical Air Control Party (TACP) upgrade.

ISR sensors used to support TST

JCIET evaluated Combined TST operations using actual ISR sensors, targets, and shooters employing a USCENTCOM-based architecture, CONOPS, and ROE. Participants employed both currently fielded Combat Identification System (CIDS) and selected emerging technologies to facilitate TTP development and evaluate potential contributions to CID and mission effectiveness. The JCIET and Joint Command and Control Intelligence, Surveillance, and Reconnaissance (JC2ISR) JT&E staffs combined capabilities to evaluate TST during the JCIET 2002. The collaborative efforts of the combined staffs allowed a broader scope of TST planning, execution and analysis, improved efficiency, and eliminated duplication of effort.

ISR participants included JSTARS, Rivet Joint, Nimrod, Airborne Warning and Control System (AWACS), Predator UAV surrogate (Pelican), a SOF team, Advanced Remote Ground Unattended Sensor (ARGUS), and National Technical Means (NTM). The CAOC, which contained partial combat operations and ISR divisions, was the primary C2ISR node for TST operations. Only the CAOC received feeds from all ISR systems. The CAOC managed collection, fused ISR information according to the Joint Integrated Prioritized Target List (JIPTL), and developed an Emerging Target List (ETL). The TST director determined when targets satisfied engagement criteria, including ROE, and approved them for posting on the Approved Target List (ATL) and prosecution. The CAOC prosecuted ATL targets with live BLUFOR attack aircraft and notional ATACMS.

BLUFOR aircraft attacked OPFOR ground targets in the Camden Ridge/Pine Hill MOAs. BLUFOR attack aircraft supporting TST consisted of F-15Es equipped with Link 16 and F-16Cs (Block 30) equipped with SADL. TST attack aircraft received targeting information by various means: voice, Link 16, Rapid Precision Targeting System (RPTS), and SADL. F-16C aircraft were able to display Link 16 land points and tracks on SADL through a Transparent Multiplatform Gateway (TMPG).

OPFOR targets operated throughout the Camden Ridge/Pine Hill MOAs. Targets included parametrically correct FSU AD systems (SA-6 Gainful, SA-8 Gecko, Roland 2, Giraffe, PU-12), a convoy of 12-15 military vehicles, two helicopters (Mi-8 and Mi-24), a mobile TOC, and Scud systems, which included two Transporter Erector Launchers (TELs)—one transloader and one decoy.

During postevent analysis and reporting, JCIET focused primarily on the individual and collaborative contributions of ISR systems to detect, locate, track, and identify ground targets and the ability of attack aircraft to effectively engage those targets. The JC2ISR JT&E focused on the Tasking, Processing, Exploitation, and Dissemination (TPED) processes internal to the CAOC offensive operations section.

Link 16 was the primary digital means for sharing Situational Awareness (SA) between theater C2ISR systems and shooters. However, there was no surface track data coordinator to manage the air-to-ground Link 16 picture, which led to ISR platforms transmitting multiple land points on Link 16 without the appropriate IDs or associated values. As a result, ISR platforms and the CAOC relied heavily on voice communications when identifying ground targets and refining ground target locations. Typically, the CAOC had the best targeting information, but did not share it with the ISR platforms as they continued to refine target locations. The target information required for prosecuting TSTs relied on the fusing and correlation of target data available from several independent ISR systems. Although the displays from these systems were collocated in the CAOC, they were not integrated into a common ground picture.

C2 of the attack aircraft was performed indirectly through the AWACS, JSTARS, or RPTS operator. Little to no feedback existed within the CAOC on whether target information received by the attack aircrews was correct or not. All attack attempts relied upon voice as the primary means of confirming attack clearance and target location. Only AWACS was capable of digitally committing attack aircraft. Neither the CAOC, AWACS, nor JSTARS were capable of digitally observing designation or aim points of the attack aircraft. When attack aircrews received precise target coordinates, they successfully acquired the target 85 percent of the time, versus 41 percent when they had to acquire the target visually or use onboard

sensors.

JCIET 2002 Recommendations

Following completion of the field portion of JCIET 2002, the JCIET staff accomplished a detailed review of the data collected during the evaluation. Two separate documents (preliminary and final) were generated—the *JCIET 2002 Quick Look Message* and the *JCIET 2002 Evaluation Report*.

Listed below are the primary recommendations contained in the final report, for each of the mission areas evaluated, releasable at the unclassified level.

JCIET 2002 Unclassified, Primary Recommendations

Air Defense

- Until Positive Identification (PID) fusion technology exists, develop interim TTPs to more expeditiously associate ISR ID information with surveillance track data.
- Develop Joint procedural autoID algorithms that are common across the Combined IADS and are easy for the warfighter to interface with complex theater ID matrixes.

Air to Surface

- Work from one set of documents (doctrine and TTP) supporting Joint operations.
- Build compatible equipment leading to common equipment. Standardize or combine schoolhouses to teach common terminology and processes.
- Include an option for employing remote positive control in Joint CAS TTP and Joint CAS school curriculum.
- Equip all airborne and ground Joint CAS participants with Link 16 or Link 16-compatible systems. Systems must display land point/tracks, target assignments, and sensor point of interest. Systems should also automatically display and update friendly locations.
- Refine and field Fire Support Control Center (FSCC)/ FSE AO/Air Liaison Officer (ALO) workstation and communications capabilities.

ISR

- Provide equipment and refine Joint TTP to help UAV operators avoid OPFOR AD threats.
- Refine Joint TTP for UAV collection to best support search, track, and engagement.
- Develop Joint TTP and provide equipment and training to facilitate two areas: a) multi-Intelligence (INT) fusion and b) INT fusion and cross cueing.
- Train C2ISR personnel on the expected quality of their information sources.
- Develop Joint TTP and CONOPS to ensure the most accurate and current target locations are transmitted to attack aircraft.
- Develop, publish, and practice Joint TTP for Link 16 employment in support of TST.
- Train C2ISR Link 16 message producers to use established workaround TTP and validate effectiveness at live instrumented Joint environments.
- Establish a Joint working group to identify Link 16 interoperability issues and direct the responsible program office to correct them.
- Designate, train, and equip a theater-level surface track data coordinator in the Joint Interface Control Officer (JICO), CAOC, or other C2ISR platform to resolve surface track conflicts.

JCIET Commander Looks to the Future

JCIET 2002 was the last scheduled JCIET-exclusive exercise. USJFCOM has directed that future JCIET evaluations be conducted in conjunction with USJFCOM-sponsored Category 2 Joint training events. In June 2003, the USJFCOM JCIET focus on CID and fratricide will become a part of Roving Sands 2003. However, Colonel Greg Brown, JCIET commander, says that the blending of the JCIET mission and team into larger-scale exercises, such as Roving Sands 2003 and JTFEX 2004, is a benefit: "We have to look at the broader perspective in terms of good for the warfighter community. We want to best apply the JCIET expertise where it will most enhance our warfighting capabilities. We have a dedicated interest in mitigating the risk of fratricide, in seeing the application of our recommendations. Current world events highlight the risks we face, and there's impetus to solve it quickly. However, we must be diligent in seeking the real solutions, and they may be long term." As for the preparations to join Roving Sands 2003, Col Brown said, "From a cooperation standpoint, things are going remarkably well. The coordination and teaming are progressing well. In communications and coordination, we are spread out more geographically than we were before. There are many unknowns where we're going, but as I said before, we must look to the broader perspective and what is good for the warfighter community."

Col Brown: "We want to best apply the JCIET expertise where it will most enhance our warfighting capabilities."

Acronym List

Advanced Close Air Support System	ACASS
Air Liaison Officer	ALO
Air National Guard	ANG
Air Officer	AO
Advanced Remote Ground Unattended Sensor	ARGUS
All Service Combat Identification Evaluation Team	ASCIET
Approved Target List	ATL
Army Tactical Missile System	ATACMS
Airborne Warning and Control System	AWACS
Blue Force Tracking	BFT
Blue Force	BLUFOR
Combat Air Patrol	CAP
Close Air Support	CAS
Combined Air Operations Center	CAOC
Combat Identification	CID
Concept of Operations	CONOPS
Capstone Requirements Document	CRD
Combat Readiness Training Center	CRTC
Camp Shelby Training Site	CSTS
Command and Control	C2
Command and Control, Intelligence, Surveillance, and Reconnaissance	C2ISR
Command, Control, Communications, and Intelligence	C3I
Enhanced Position Location Reporting System	EPLRS
Emerging Target List	ETL
Forward Air Controller Airborne	FAC A
FAC Ground	FAC G
Federally Funded Research and Development Centers	FFRDC
Fire Support Control Center	FSCC
Fire Support Element	FSE
Former Soviet Union	FSU
Generic Operations Center	GOC
Integrated Air Defense System	IADS
Intelligence, Surveillance, and Reconnaissance	ISR B
Joint Battle Center	JBC
Joint Combat Identification Evaluation Team	JCIET
Joint Integrated Prioritized Target List	JIPTL
Joint Special Operations Task Force	JSOTF
Joint Surveillance Target Attack Radar System	JSTARS
Joint Test and Evaluation	JT&E
Joint Warfighting Experimentation Battle Lab	JWEBL
Multiband Inter-/Intra-Team Radio	MBITR
Military Operating Areas	MOA
National Technical Means	NTM
Night Vision Goggle	NVG
Operational Detachment-Alpha	ODA
Opposing Force	OPFOR
Positive Identification	PID
Ruggedized Handheld Computer	RHC
Rules of Engagement	ROE
Rapid Precision Targeting System	RPTS
Situation Awareness Data Link	SADL

Surface-to-Air Missiles	SAM
System Engineer	SE
Single Integrated Air Picture	SIAP
Special Operations Forces	SOF
Sensor Point of Interest	SPI
Tactical Air Control Party	TACP
Terminal Controller	TC
Transporter Erector Launchers	TEL
Transparent Multiplatform Gateway	TMPG
Tactical Operations Center	TOC
Tasking, Processing, Exploitation, and Dissemination	TPED
Time-Sensitive Targeting	TST
Tactics, Techniques, and Procedures	TTP
Unmanned Aerial Vehicle	UAV
United Kingdom	U.K.
United States Central Command	USCENTCOM
United States Joint Forces Command	USJFCOM
Visual Identification	VID
Windows Forward Air Controller	WINFAC

Analytic Support for Courses of Action Development During Crisis Action Planning

Mr. Kevin Denham
Military Analyst

Overview

Joint Warfighting Center (JWFC) has undertaken a comprehensive study of Courses of Action (COA) analysis tools suitable for Crisis Action Planning (CAP) at the Joint Operational Level of War. Traditional CAP COA development and selection has been largely "art" with a little "science." JWFC is trying to reverse this art-to-science ratio by researching analytic tools to support CAP and reinforcing analytic training to staffs during major exercises supported by JWFC. In the context of this study, "tools" includes everything from simple planning checksheets to shared Excel spreadsheets to sophisticated models/simulations capable of running in a networked personal computer environment in support of wargaming and mission rehearsal.

Issues

Combatant Command and Joint Task Force (JTF) staffs have a small core of experienced CAP personnel. The bulk of JTF staff functional planning groups often comprise an *ad hoc* mixture of personnel (including military reserves and temporary duty (TDY)) with little or no experience in the CAP COA process. This marginal analysis experience hinders COA development and selection. The compressed time line available to conduct planning during a crisis further exacerbates the planning process. Each Combatant Command has expressed a desire to have a simple, user-friendly, highly portable software tool that automates distributed collaborative planning and decision-making under crisis conditions. They prefer tools that use existing standard software (e.g., web browsers and/or office suite of programs.)

Models and simulations should account for the nature of modern warfare that does not resemble historical force-on-force, attrition warfare. Arguably, the Korean Conflict was the last major conflict of that type, and since that time, smaller countries/groups have conducted asymmetric, guerilla-style warfare against larger, better equipped and more technologically advanced adversaries with a large degree of success. For the first time, America's Global War on Terrorism recognizes the increased danger to national security posed by trans-national non-state groups. This type of warfare is highly asymmetrical and renders existing military models and simulations ineffective.

The changing nature of modern warfare requires us to expand the search for useful planning tools. These tools should aid in analyzing enemy Political, Military, Economic, Social, Infrastructure, and Information ($PMESI^2$) centers of gravity as affected by the integrated application of diplomatic, information, military, and economic instruments of our national power. The ultimate goal is to find tools that help planners link events and outcomes in one arena to 2nd and 3rd order effects in the other arenas; assist in developing the required force structure to accomplish the strategic and operational objectives; and work in a distributed collaborative environment.

Study Background

An assessment of the Chairman, Joint Chiefs of Staff (CJCS) exercises supported by USJFCOM revealed there is no consistent, current program to include computer-based analytic war games, computer-based models or computer simulation support to assist Combatant Command and JTF headquarters personnel in crisis action planning. Previously, computer-based CAP support (but not training) was provided to some exercise training audiences by an ad hoc team comprising the U.S. Atlantic Command (USACOM) Deployable Joint Task Force Augmentation Cell (DJTFAC), Modern Aids to Planning Program (MAPP) II contractors, and the Joint Reserve Unit (JRU) analysts. Elements within this group were disbanded due to a combination of factors including: limited demand for their services; low exposure during exercises; lengthy preparation times; completion of the MAPP II contract; reallocation of the DJTFAC billets into USJFCOM JTF Civil Support (JTF-CS); and subsequent reorganization of the JRU assets. When considering whether to re-institute automated CAP support, an informal survey was conducted within several JTF planning groups and functional staffs. Survey respondents made it clear that while they welcomed any tool that helped automate one or more steps in the CAP process, such a tool would have little utility unless it was, "…hands-on, responsive, easy-to-use, and readily available to the planning staff…" All respondents agreed they preferred to "train as they intended

to fight."

When this study was conceived over a year ago, the principal assumption was that tools existed to support Course of Action development, analysis, and selection during Crisis Action Planning. A second assumption was that there were sufficient and competent operations research-trained personnel assigned to the planning staffs. Initial research has proven both assumptions to be invalid. The focus of the study has since shifted to providing a better analytical background to JTF staff planners to improve their effectiveness in more traditional (manual) methods while development agencies continue work to meet the operational requirement. Concurrently, we are working with various research and development organizations to keep apprised of advances in this growing field of interest.

Requirements

A survey was sent to each Combatant Command staff in November 2000 requesting information on tools they use to conduct CAP. Response was limited and generally confirmed that commands have a requirement for automating/enhancing the CAP process, but they do not have a satisfactory tool kit to address that need. Each Combatant Command does employ some type of collaboration tool, with the prominent programs being *Info Work Space* (IWS), *Facilitate.com*, and *Defense Collaborative Tools Suite* (DCTS). Interviews confirm that Combatant Command staffs desire a program that is intuitive to use, does not require proprietary client-server software, has minimal bandwidth/server loading, and integrates with existing Windows-based programs. Collaboration tools are viewed as essential to provide:

· A shared knowledge base of PMESII[2] data;[1]

· A doctrinally-based framework for crisis action planning and execution;

· A shared repository of plan objects to be tailored to the current situation;

· A common view of the plan in development;

· Shared analytic and planning support tools to refine common plan objects into products;

· Rapid dissemination of planning products to end-users.

Tools in use

US European Command (EUCOM) promotes Theater Analysis and Replanning Graphical Execution Toolkit (TARGET), which includes COA Selection Tool (COAST), Operations Planning Tool (OPT), Map Analysis Tool for Transportation (MATT, but being renamed as *Map Viewer*), and a set of collaboration tools comprising a multicast whiteboard tool and desktop video-teleconferencing program. TARGET is designed to allow planners and operators to accomplish tasks through rapid access to required documents; information sources; and analysis, multimedia, and teleconferencing tools. It operates from a SPARC 20 using the standard Global Command and Control System (GCCS) environment.

US Pacific Command (PACOM) recently concluded a 3-year Advanced Concept Technology Demonstration (ACTD) for the Adaptive Courses of Action (ACOA) toolset. ACOA was designed by the Defense Advanced Research Projects Agency (DARPA) and Defense Information Systems Agency (DISA) to be an integrated collaborative crisis action planning tool. It employs a combination of government-developed tools (Web Planner, Intelligent Process Manager, Course of Action Support Tool (COAST), Virtual Information Books, Geo-Spatial Planning Tool, Force Deployment Management Tool, Knowledge Board) and commercial applications (*Facilitate.com* meeting tool and *Odyssey* Collaboration System). These tools not only help guide the crisis action planners through the Joint Operational Planning and Execution System (JOPES) process, but automate such functions as order production (Planning Orders, Warning Orders, Alert Orders, etc.), COA development, COA selection and briefing. The software is relatively simple to understand and use, designed to work in a group environment, and provides a simple means to share planning data through standard Microsoft Office applications (Word, Powerpoint, Excel.) COAST provides a simple tool to help guide Crisis action Team (CAT) planners through COA development and analysis in a collaborative environment with a clear display of results.

The overall evaluation by the program office is that ACOA satisfies all the stated requirements. It satisfies an Operational Requirement, improves the quality of JOPES products, improves collaborative processes through its shared database structure, and supports the Joint Planning and Execution Community in its operating environment. Most notably, it shortened the JOPES cycle time from approximately 7 days to 36 hours. While in general it is user-friendly and intuitive, some tools are complex and require more qualified users to function effectively.

The post-ACTD version of ACOA will likely drop support for many of the tools, including COAST, in favor of a smaller system. *Facilitate.com* may replace Microsoft *Netmeeting* as part of the DCTS. ACOA is scheduled to begin integration testing with Global Command and Control System (GCCS) this year and be fielded as an integral part of GCCS v4.2 in Fall 2003. PACOM also employs a combination of IWS and SECRET Internet Protocol Router Network (SIPRNET) newsgroups as crisis action planning collaborative planning tools. *Odyssey* is a collaboration tool tested in PACOM for both unilateral and coalition operations, however, it has several drawbacks that make it less than suitable. Decision Support Software for Coalition Operations (DSSCO) is a Microsoft Project-based program which was initially designed to help guide planners through the CAP process in an operational environment, however it has since been relegated to a training aid for CAP planners vice an operational tool.

Reach Back Tools

Several agencies operate a number of models and simulations that are not suitable for implementation locally at the JTF headquarters, but can support operational planning through reach back. US Transportation Command (USTRANSCOM) uses Joint Flow and Analysis Tool (JFAST) and Enhanced Logistics Intra-theater Support Tool (ELIST) to evaluate inter-theater and intra-theater logistics plans for feasibility and supportability. Consequences Assessment Tool Set (CATS) is managed by Defense Threat Reduction Agency (DTRA) to assess the effects on populated areas of disasters, including both man-made and natural disasters. CATS helps perform hazard/damage area estimates, contingency planning, analyze populations at risk, assess logistics plans/reports, and support response training. DTRA also manages the Integrated Theater Engagement Model (ITEM) to support mission rehearsal for joint operations, however its primary focus is on maritime operations. THUNDER (not an acronym) and Tactical Warfare simulation (TACWAR) are tools that support mission rehearsal of primarily air and ground forces, respectively. The drawbacks to each of these simulations are the extensive database preparation time, operator training, and exclusive force-on-force modeling of object interactions.

Tools In Development

USJFCOM (J95), the Defense Modeling & Simulation Office (DMSO), DARPA, Modeling & Simulation Information Analysis Center (MSIAC), Joint Information Operations Center (JIOC), and Navy Research Laboratories (NRL) have been contacted to research what tools they have in fielding or development that may be useful to the study. In general, the tools available through their program offices operate at the *tactical* level of war, tend to be service-oriented, use attrition-based warfare models, and require extensive operator training and database preparation.

The NATO Command & Control Consultation Agency (NC3A) demonstrated a set of Excel spreadsheet models for air, land, and sea-based warfare. The Land-Air-Maritime Battle Decision Aid (LAMBDA) spreadsheets were simplistic, relatively intuitive to use, and employ basic attrition warfare calculations to model/forecast force movements and attrition (friendly force and enemy force). While the spreadsheet models are not as sophisticated as more conventional war game simulations and the visual output is less appealing, they offer the advantages of providing near-instantaneous results, flexibility, and the ability to aggregate units for operational level maneuver.

Entropy-Based Warfare (EBW) is a program in development by Booz-Allen & Hamilton, Inc, that attempts to measure the amount of cohesion (order) within military forces and the effect of military actions against that cohesion. The underlying theme of this model is that future warfare cannot be adequately modeled using attrition as the primary measure of effectiveness. EBW postulates force, space, and time as three factors historically manipulated by commanders to gain tactical, operational, or strategic victories. EBW further postulates that a unit may be viewed primarily in terms of two attributes – cohesion and lethality. Factors such as the Clauswitzian notion of "friction" and disruption affect cohesion, while lethality is the more conventional descriptor of physical capabilities. Friction is defined as those activities that a unit performs that increase its entropy level (amount of disorder). Disruption includes those activities that an *enemy* conducts to increase a unit's entropy level. Lethality is the firepower a unit has to directly reduce the enemy forces through physical contact. EBW seeks to provide decision makers with an alternate, more encompassing metric for combat-effectiveness. EBW's promise is a greater understanding and synchronization of forces to deny the enemy knowledge of events (friction), breaking down enemy command and control mechanisms

and enemy force movements (disruption), and application of sufficient firepower at the critical juncture(s) (lethality) to achieve victory.

Combined Operations Training, Experimentation, and Analysis Model (COTEAM) is an enhancement of the Advanced Joint Combined Operations Model (AJCOM) developed for the Joint Forces Staff College as an academic tool. COTEAM is designed to operate from a small network of Windows-based PCs and uses artificial intelligence techniques to minimize requirements for human operators. It interfaces with JOPES inputs and can import Time-Phased Force Deployment Database (TPFDD) information in a TPFDD standard B8 report format. Users view force-locating information in a GCCS Common Operational Picture (COP) format or it can interface directly with a command and control PC (C2PC) for data presentation. Capable of operating at a 3600:1 time compression, COTEAM has the potential to support crisis action planning COA analysis through mission rehearsal of various scenarios, analysis of force sufficiency, assessment of alternative force structures, and evaluation of enemy COAs. COTEAM is presently under evaluation by JFCOM Joint Experimentation (J9) as part of exercise Millenium Challenge 02.

Project GENOA is a DARPA initiative to develop tools and a system for collaborative crisis understanding and management at the Combatant Command level. The key enabling technologies are: knowledge discovery of critical information from unstructured multimedia sources; structured augmentation to capture and present reasoning from evidence to conclusion; and a comprehensive corporate memory to compare critical information across situation, time, and organization. The premise of Project GENOA is that the earlier a national security crisis is detected and understood at the national strategic level, the easier it is to arrive at preemptive or mitigating strategies which can defuse the situation with minimum resources and before military force is required. Project GENOA uses advanced information technologies to implement a system of systems to assist crisis action team members. It is based on an infrastructure to accommodate information exchange, storage, and retrieval; data gathering tools to rapidly locate and assemble relevant information from a wide assortment of classified and unclassified (open) multimedia sources; analysis tools to assist in monitoring sensitive areas and detect pre-emerging crises; collaboration tools to assist in both real and non-real time distributed information sharing and discussion; data representation techniques for packaging relevant information which can be readily accessed and updated by team members; and advanced multimedia presentation techniques to create different briefings and presentations to different audiences with different interests and perspectives. While not a tool set design for JTF Staff level work, Project GENOA has the potential for rapidly educating a newly formed JTF Staff on the crisis they are responding to and initial COAs they may consider during CAP.

Tools requiring further investigation include: Deliberate and Crisis Action Planning and Execution System (DCAPES), Force Deployment Estimator (FDE), External Logistics Processor (LPX-MED), Theater Analysis Model (TAM), Situational Influence Assessment Model (SIAM), and Information Warfare Planning Capability (IWPC.)

CONCLUSIONS

At present, there are no "tools" in use or identified that meet all the requirements (portable, minimal personnel/training/equipment requirements, "plug and play", suitable for addressing PMESI[2] factors in asymmetrical environments (i.e., non-attrition based warfare models), minimal database build requirements, and scalable at the Operational level of war.) However, there are programs in development or presently fielded that meet *some* of the requirements.

The Way Ahead

This study initially focused on searching for models, simulations, and decision aids that supported crisis action planning at the operational level of war or higher. However, development teams are working almost exclusively on computer programs that provide an increasing level of detail at the tactical level. The downside to this approach is the increased computational requirements, database requirements, and complexity to operate. The expressed desire by the end-users at the Operational level is a small, portable, fast program that supports initial analysis and planning.

The dispersed nature of recent JTF and Combatant Command staffs has increased interest in collaboration tools/systems. Most commercially produced collaboration tools are designed to facilitate "conference call" types of events for synchronous planning and/or

providing a means of posting and sharing document files for asynchronous reviewing and editing by participants. In general, these programs do not provide a very robust means of integrating third-party analysis tool applications in a synchronous planning session.

The challenge to the software development community is clear. Our military and interagency forces have an expressed need for a set of models and simulations that break from the old paradigm of force-on-force attrition warfare and can support operational level planning in a crisis environment. Additionally, these automated analysis and decision aids should be able to function in a distributed, collaborative environment with minimal resource requirements. Collaborative environments must be able to support both synchronous and asynchronous planning, including sharing third-party applications in a real-time environment.

About the author

Kevin Denham is a retired U. S. Naval officer, a member of the Joint Warfighting Center (JWFC) Support Team, currently working as a military analyst in the Analysis Support Branch at the JWFC, Suffolk, Virginia. He is a former surface warfare officer with extensive experience at sea and on carrier battle group staffs. Mr. Denham has been employed at the JWFC since October 2001, and is currently heading a team to improve decision analysis during crisis action planning and execution.

[1] Joint doctrine describes the need to employ four elements of national power (diplomatic, information, military, and economic – "DIME") against the enemy's strategic and operational centers of gravity (COG). One recent concept involves categorizing COG as political, military, economic, societal, infrastructure, or information (PMESI[2]) related and defining specific effects to be achieved through application of DIME actions against the PMESI[2] COG. To realize the desired effects as effectively as possible, DIME actions must be coordinated to obtain a synergy of effort and preclude conflicting efforts.

Analysis Trends Papers

Alan D. Preisser
Editor, JCLL Bulletin

The following five articles represent a portion of the analysis products produced by the Analysis Support Branch of the Joint Warfighting Center Support Team. Each of these papers represents an in-depth analysis of over 1300 records and 60 Joint Task Force (JTF) events from the lessons learned database relevant to specific topics, and they present examples of comments from Joint After-Action Reports (JAAR). Additional analysis papers are under development or planned for the future and will be presented in future JCLL Bulletins. Below is a quick synopsis of the five papers presented in this Bulletin.

1. Ad Hoc Staff Manning

In the first paper, the topic of ad hoc JTF staff manning is evaluated. Although this area of concern is being mitigated to some extent due to the development of the Standing Joint Force Headquarters (SJFHQ) at each combatant command, an examination of the problem is appropriate to capture the rationale for this valuable initiative. This paper, based on a review of the more than 100 joint exercises, highlights the inefficiencies associated with trying to develop a JTF headquarters using personnel from different Services and staffs, many who have never worked together and may not be trained in the arena of joint operations. Often these individuals view their position from the viewpoint of their Service specific requirements and from within its command and control structure. A core organization of highly trained personnel, oriented toward joint planning and execution requirements, can expedite and smooth the transition to full operational capability for a newly formed JTF by eliminating the inefficiencies.

2. Experience Level of JTF Staff Personnel

The review reveals some indicators on the personnel who are assigned to a JTF as augmentees and liaison officers (LNO). Augmentees and LNOs are often assigned at the last minute to fill a position and are too often the newest or least skilled/ trained individuals. These individuals arrive with little idea of where they are supposed to work and receive no adequate indoctrination upon arrival. Analysis indicates that when a joint force headquarters assigns an individual the responsibility of being in charge of the augmentee and LNO program, fewer problems will occur.

3. JTF Headquarters (JTF HQ) Standing Operating Procedures and Tactics, Techniques, and Procedures

Written, current, and updated standing operating procedures (SOP) and tactics, techniques, and procedures (TTP) are critical to ensuring JTF staffs are able to operate in an efficient manner. Staff familiarization and regular review will help overcome the challenges in integrating new members into the staff, and in rapidly establishing the necessary daily HQ routines. SOP and TTP need to be coordinated between the different staff functions in order to ensure their currency and continuity of effort.

4. Integration Of JTF Intelligence Assets

The next analysis paper investigates OP 2.1, Direct Operational Intelligence Activities. Quite often JTF intelligence staffs are formed around a parent Service component with sister Service and Agency personnel as augmentees. While the core Service personnel are well-trained in the specific Service intelligence support systems, the augmentees are not familiar with them and must be trained to be effective. This creates an effectiveness time lag and can be detrimental to the internal and external information management, particularly in a time-compressed operational environment. Three areas are addressed: information flow, intelligence support systems, and joint intelligence preparation of the battlespace (JIPB). A well-designed plan for reception and training of augmentees is critical to this effective J-2 intelligence function.

5. Information Management (IM)

This paper is based on a review of over 1300 records spanning over 60 JTF events, including 119 records related to IM. Results are broken down into three areas. First, the results show that a successful IM program is highly dependent on a good IM plan (IMP) and a knowledgeable IM officer (IMO). If a JTF does not have a strong IMP and well-trained IMO, the program will suffer and the staff will struggle during operations. Recommendations include a well thought-out and detailed SOP and Operations Order; early staff meetings to clarify procedures; and IM cell availability and involvement during operations. The second area deals with dissemination of information to the JTF staff, particularly with reference to web-based technology advances. Discussion revolves around ensuring information is not buried too deeply in the web-based sys-

tem and thus negating accessibility, keeping information flow simple and uncomplicated, and frequent review of data to ensure information is relevant and prioritized correctly based on current circumstances. The final area deals with the problem of access to the information, especially the issue of releaseability and access by allied and coalition partners to United States systems.

AD HOC JOINT TASK FORCE STAFF MANNING

PURPOSE. Provide an analysis of effects of "ad hoc" manning of the joint task force (JTF) staffs.

BACKGROUND. As a rule, there is no standing joint task force headquarters staff. In crisis, the U.S. military depends on existing three and two star service component headquarters to provide the core of the JTF staff structure. Extensive augmentation is usually required to provide the broad base of expertise and experience required to conduct coherent joint operations.

AD HOC STAFF MANNING

A. Many difficulties are encountered in forming a JTF staff by augmenting an existing Service staff. These difficulties lead to inefficiency and ineffectiveness in performing many tasks. This is particularly critical in the early stages of the life cycle of a JTF. The following are quotes from exercise reports:

· "The JTF staff faced a typical array of command and control (C2) challenges during the reception/forming phase of the exercise."

· "During the initial meeting of the joint planning group (JPG), members were introduced, but the JPG director had no roster of personnel who were expected to be present. The director later recognized the need for a roster and for checking representation in the group. Directions were given to planners to coordinate with counterparts in the joint operations center (JOC). The JPG director clearly understood that his focus was on future operations and the need to avoid being drawn into current operations. He also discussed the division of labor between J-35 and J-5. J-35 was identified to work branches and sequels for Phase III (combat operations), and J-5 was tasked to plan Phases IV and V (transition and redeployment)."

· "A battle roster defining makeup and roles of JPG members was not provided prior to the initial meeting of the group. The meeting was attended by more than 80 representatives of the JTF staff but was unproductive due to size and lack of organization. Similarly, duty descriptions and organization charts were not provided to staff members in J-6."

· "During the Planning Phase of the exercise (Phase II) less than 20 percent of the J-2 staff came from the Corps HQ. This exacerbated the usual forming problems encountered by a JTF intelligence staff with so many people working together for the first time. From the outset of the operation, the J-2 staff had difficulties with familiarization of systems, techniques, and procedures."

· "Information dissemination was initially a problem."

· "A comprehensive plan for reception, orientation, and training of the JTF staff is a key element to effective team building. Recommend that a reception and orientation program be developed and incorporated into existing directives."

· "Where billets were not filled, or where they were filled with other than specified skill sets, the staff lacked the expertise or manpower to perform some tasks."

· "During the first week, the staff trained as it worked through practical exercises and examined the processes and systems involved. The first week of training set the conditions for success in the second week. In a crisis situation, the staff may not have the luxury of an extra week. A deliberate training plan is critical."

B. Ad hoc headquarters have no rehearsed standing operating procedures. The headquarters personnel initially are in unfamiliar positions working with strangers. They are asked to perform collective and collaborative tasks interrelating with those whom they have little or no experience. The quotes continue:

· "Because the JTF did not receive sufficient augmentation, it pressed the component liaison officers into duty as component planners. This presented two problems. First, as liaison officers, they were familiar with parent force availability and capability but were not

prepared for in-depth planning of force employment at the JTF level. Second, as component planners, they were diverted from their principal duties as liaison officers. As a result, neither function could be performed to full potential."

· "Many of the JTF augmentation personnel were unfamiliar with the JTF staff concept and many were inexperienced with the systems they would use. Given the nature of a JTF, these problems may be unavoidable."

· "Many of the J-2 staff lacked previous JTF experience and many had no experience or background in the specific specialty to which they were assigned. This was most evident in the collection management, analysis, request for information (RFI) administration, and dissemination elements. There was a demonstrated unfamiliarity with the associated systems, procedures, and specific collector capabilities."

· " . . . to establish, train, and maintain component-based JTF headquarters. These headquarters require Service and functional augmentation as they transition from familiar Service business to less familiar joint business. There is generally a period of adjustment in which the headquarters focuses on a new, operational level mission, with new processes and augmentation personnel."

· " . . . manning levels and inadequate experience and training haunted the information warfare (IW) cell. This was the biggest challenge facing the IW staff. Members were receptive to Observer/Trainer (O/T) guidance and recommendations and readily worked through problems. For the JTF to have a fully functioning IW program that permitted coordination up and down the chain of command, more assets needed to be dedicated to the process. There just were not enough personnel assigned with appropriate levels of training to properly coordinate and execute IW options."

· " . . . a lack of personnel trained in the intelligence preparation of the battlespace (IPB) process, and no established procedures for sharing IPB products were observed at both the JTF HQ and component level. These factors contributed greatly to the paucity of joint intelligence preparation of the battlespace (JIPB) related products available during this exercise."

C. The core of the ad hoc staff usually finds solutions to joint problems by planning for solutions conceived within their "comfort zone". These joint solutions are often Service centric solutions that may not optimize the capabilities of the joint force. More quotes:

· "The overwhelming majority of the JTF staff consisted of officers and non commissioned officers (NCOs) with a maritime background . . . the staff appeared at times to be uncomfortable with land operations, causing the staff to either overlook essential land operations issues or to micro-manage operations on the ground. Both of these situations could have been avoided if a senior member of the JTF staff had been an officer with extensive land operations experience. In the future, when this JTF is called upon to command an operation that includes significant ground operations, consideration should be given to identifying a deputy JTF commander or J-3 with a land operations background."

· "Due to a restriction in the exercise Joint Manning Document, component to component LNOs were not resourced. This adversely effected component planning and subsequent component input to the JTF planning process."

· "The predominantly Service representation, both in numbers and in key positions, initially limited the scope of planning to maritime solutions. As a result, JTF planning efforts did not consider all the capabilities the joint force could apply toward accomplishing the mission. The staff identified this shortfall in planning and began to explore other joint options, as they became better educated on the capabilities of the other services."

CONCLUSIONS. The initial performance of the JTF staff suffers from ad hoc augmentations. Some organizational core is needed that can act as a "center of excellence." This core would develop standard JTF staff processes and procedures for the myriad staff functions and processes required to plan and execute a complex joint operation. This core would reduce the inefficiencies and ineffectiveness that results when forming an "ad hoc" JTF staff. Adequately manning and exercising this staff could significantly increase awareness of joint capabilities and processes that are now learned on the job after a very painful forming process.

EXPERIENCE LEVEL OF JOINT TASK FORCE STAFF PERSONNEL

PURPOSE. This paper reports the results of research, analysis, and study seeking to understand the training and experience levels of personnel assigned to joint task force (JTF) headquarters (HQ).

RESULTS. Generally, JTF HQ staffs are formed from Service component staffs by augmenting the JTF staffs with sister Service personnel. These are termed augmentees and liaison officers (LNO). The personnel on the Service staffs are normally skilled and practiced in their assigned positions, and focused on Service specific tasks. However, quite often the JTF assigned augmentees and LNOs are the least skilled from the Services. And, during the JTF augmentation period they receive only broad academic instruction on JTF Operational Level tasks. Therefore, the records search focused on those staff personnel categories.

A. Processing. Problems begin when an augmentee or LNO arrives at the joint force headquarters. The reception center has no idea where to assign the individual and there are no adequate indoctrination procedures in effect. The following are selected representative extracts from the records examined:

· "When the component LNO teams reported to the JTF it was not clear to whom they would report, where they would work, and what the JTF envisioned as their roles and responsibilities."

· "Because there was no space set aside for the LNOs, their work area became the joint operations center (JOC). This arrangement tended to isolate the LNOs since the joint planning group (JPG) was meeting and working in an area separate from the JOC."

· "The JTF faced a number of challenges associated with rapidly integrating a large number of augmentees into a headquarters. Many of the JTF augmentees were unfamiliar with the JTF staff concept and many were inexperienced with the systems they would use."

· "The JTF headquarters should prepare a detailed reception and training plan for augmentees."

B. Training. Many personnel assigned as augmentees and LNOs are not trained in the areas where they are to work, or are not of the appropriate rank and/or experience level for the position they will occupy. The following are selected representative extracts from the records examined:

· "JTF LNO were effectively used to convey information to the components in a timely manner; however, more LNO training, more senior LNOs, and additional LNOs would have made the process even better."

· "LNO selection, training, and performance still need additional attention."

· "There was a lack of communication between the JPG and LNOs. LNOs needed to more critically review all JPG products to check for their components' involvement."

· "Direction and control of the components was not exercised by the JTF. At times the components, through the LNOs, were driving what the JTF was doing. The LNOs would hear, assess, and report to their components. The components would make decisions and send the orders they wanted to the JOC via E-Mail. The JOC would then produce orders."

· "The joint force air component commander (JFACC LNO) would have benefited from U.S. States Coast Guard (USCG) assistance to resolve USCG aviation issues. The USCG had two O-6 LNOs, one surface operator and one aviator, assigned to JFMCC. The surface operator was sufficient to assist the U.S. Navy LNO to the joint force maritime component commander (JFMCC) on USCG surface issues. The JFACC LNO had no USCG assistance but needed to include USCG aircraft, both fixed wing and rotary, in his planning. USCG operations almost always combine surface and air aspects; therefore, both surface and air planning teams need USCG representation/assistance."

· "Joint special operations task force (JSOTF) LNOs were not provided training or orientation on the JTF E-mail system and message traffic system used."

· "The lack of an Air Force forces (AFFOR) LNO on the JTF staff hindered the mission analysis process and essentially omitted the component planning perspective. All components must be represented at the JPG during the crisis action planning process."

· "The selection and use of LNOs within a JTF has traditionally been a source of problems. However, following some of the initial observations that mainly concerned identification of LNO operating space/equipment; responsibilities, roles, and missions, the assigned LNOs were extremely valuable to the JTF staff. They were able to effectively represent their commands/ agencies."

· "JTF staff augmentees, in particular those assigned to the JFACC, reported without the requisite contingency Theater Air Control System automated planning system (CTAPS) familiarization. Much of the training received in this exercise is "graduate level" work. Personnel are assumed to have a working knowledge of systems such as CTAPS."

· "CTAPS training continues to be a problem in joint exercises. Services should ensure that personnel are familiarized with equipment as per the manning documents. The JTF should ensure people selected for critical billets have the appropriate 'pre-training'."

· "The use of pre-designated, experienced, staff modules to augment the JTF nucleus staff is one way to mitigate the problems associated with integrating a large number of augmentees."

· "Augmentees should receive a written description of their specific responsibilities when they in-process to the JTF headquarters. These "job descriptions" would be part of the JTF standing operating procedures (SOP) and would help the individual augmentees quickly familiarize themselves with their duties and responsibilities."

· "The receiving staff organization must have a training and orientation program established to prepare augmentees for their assignments."

CONCLUSIONS

· The problems that arise with the use of augmentees and LNOs often begin when the individual arrives at the joint force headquarters. In many cases this is caused by the fact that the reception center has no idea where to assign the individual and adequate indoctrination procedures have not been placed in effect. Organizations that assign someone the responsibility of "being in charge" of the augmentees/LNOs tend to experience fewer problems and are able to more effectively use these personnel.

· Numerous augmentees and LNOs are not trained in the areas where they are to work, or are not of the appropriate rank/experience level for the position they will occupy.

JOINT TASK FORCE HEADQUARTERS STANDING OPERATING PROCEDURE AND TACTICS, TECHNIQUES, AND PROCEDURES

PURPOSE. This paper reports the results of research, analysis, and study seeking consistent use of standing operating procedures (SOP) and tactics, techniques, and procedures (TTP) in a joint task force (JTF) staff.

RESULTS. Research and analysis focused on over 1300 records spanning over 60 JTF events. 54 of these records related to SOPs and 9 to TTP. Analysis of these records indicates the following:

A. Working Knowledge. JTF staffs have written SOPs and some TTP. However, individual members of those staffs usually have little working knowledge of the JTF SOP and TTP. The following are selected representative extracts from the records examined:

· "It is essential that staff members become familiar with the SOP and are intimately familiar with procedures directly affecting them. SOPs should be reviewed and updated as necessary to support mission tasking. Additionally, each member of the staff should maintain a clear understanding of mission requirements and intent in order to effectively support the commander and assist other staff sections."

· "The commander considered the daily decision cycle and established the cycle through an SOP item. This paid dividends for the JTF, as they were able to quickly establish daily schedules and routines. The exercise allowed the JTF to practice the established decision cycle process and afforded the opportunity to adjust or modify the process, as required."

B. Regular Reviews. Most of the JTF SOPs and TTP are not reviewed regularly, and, are out of date. The following are selected representative extracts from the records examined:

· "The length of the SOP presents a significant chal-

lenge to the staff on how to get full comprehension of all areas. The tendency of each section was to review and update their SOP with little familiarization of other SOP sections. This becomes an even more significant issue as the staff comes to full strength and since augmenting personnel have little time to become familiar with all staff policy and procedures."

· "Documentation of the experience gained during the exercise in the form of SOPs, was key to passing the knowledge gained, to new nucleus staff members and augmentees."

· "The exercise provided the JTF staff with an opportunity to practice many of the procedures outlined in the SOP."

· "In addition to validating the existing SOPs the staff also identified areas where new procedures or processes were required."

C. Critical TTP. Some critical elements not covered in doctrine were therefore not covered in SOPs. The following are selected representative extracts from the records examined:

· "Doctrine and joint TTP need to address and provide definition on establishing criteria and quantifying the achievement of air and maritime superiority."

· "There are no current joint TTP for collection management and dynamic retasking for low-density, high-demand collection assets. This limitation forces each JTF to establish and implement non-standard procedures that are inconsistent between operations."

CONCLUSIONS

· The records reviewed indicate that in most cases joint force staffs have little working knowledge of SOPs/TTP, and, in many instances, the documents in use were incomplete or out of date.

· Without current and readily available SOPs/TTP, JTF staffs are required to use valuable time "reinventing the wheel."

INTEGRATION OF JOINT TASK FORCE INTELLIGENCE ASSETS

PURPOSE. This paper reports the results of research, analysis, and study seeking to understand the task capability of OP2.1, Direct Operational Intelligence Activities.

RESULTS. Research and analysis focused on over 60 joint task force (JTF) events. In these events, JTF staffs, including J2, are formed around a parent Service component augmented with sister Service and Agency personnel. The personnel on the Service staffs, normally, are skilled and practiced in their assigned positions using Service specific intelligence support systems. Within the core of the headquarters, the first requirement is to conduct reception, staging, onward movement, and integration (RSOI) activities. For the J2 staff this normally includes training and integration of core intelligence systems and procedures. In a crisis environment, failing to completely orient a forming JTF staff in time leads to predictable adverse results. None has more immediate consequences than overcoming the inertia inherent in organizing information management (IM) within the J2 staff and outward from them to the command group and the operations and plans staffs. Three trends are reported below using typical quotations from observations and reports.

A. Information Flow. Flow of intelligence information within the JTF was problematic. There was a lack of coordination in passing information in a timely manner between J2 cells inside and outside the sensitive compartmented intelligence facility (SCIF). This was caused by a lack of coordination between personnel working within the SCIF and those on the outside. An understanding of information flow requirements within the JTF is essential.

B. Intelligence support systems. Confusion arose out of the employment of some of the intelligence support systems for dissemination of information. Within the JTF headquarters, there was a shortage of personnel trained on various intelligence systems, e.g., joint deployable intelligence support system (JDISS), intelligence data handling system (IDHS), modernized intelligence database (MIDB), and community on-line intelligence system for end-users and managers (COLISEUM).

C. Joint Intelligence Preparation of the Battlespace (JIPB). There was only limited predictive analysis conducted throughout the JTF. Analysis was limited in part because of a lack of a fully devel-

oped JIPB.

CONCLUSIONS. The practice of forming JTF staffs around a Service component core staff requires a well thought through plan for RSOI of augmentee personnel. Within the J2 staff and its interfaces with the command group and operations and plans staffs, time is required to build the interpersonal relationships and human networks necessary to properly pass information. The lack of networking is exacerbated by the use of Service specific intelligence systems and lack of use of joint systems. Developing familiarity and ease of use takes time when time is not available. The result is that the JIPB required to initiate Course of Action development and analysis is not always sufficiently mature to meet its purpose.

INFORMATION MANAGEMENT

PURPOSE. This paper reports the results of research, analysis, and study seeking consistent performance of tasks supporting information management (IM) on joint task force (JTF) staffs.

RESULTS. Research and analysis focused on 119 records related to IM. The analysis of these records indicates the following:

A. Good Information Management Plan (IMP) and Knowledgeable Information Management Officer (IMO). IM is a critical element of successful JTF headquarters operations. That success depends on a well developed IMP and a capable IMO. The inverse is also indicated; JTF staffs struggle when the IMP and/or the IMO are weak or lacking. The following are selected representative extracts from the records examined:

· "The joint task force headquarters standing operating procedures (JTF HQ SOP) and operations order (OPORD) provide sufficient instruction and procedures for the establishment of Mission Oriented Protective Posture (MOPP) for subordinate units. However, there is no internal staff SOP for establishing and disseminating the MOPP level within the headquarters."

· "During the forming phase, information managers from each staff directorate and major functional area met to clarify procedures and discuss IM issues. The Joint Operations Center (JOC) Team Chief, who managed the IM process, facilitated a thorough discussion of IM procedures as they were outlined in the SOP."

· "Several staff officers in the JOC, who were individually responsible for the mechanics of the IM process, managed information. A central IM Cell, composed of three officers each shift, managed the JTF Homepage and scheduled video teleconferences (VTCs). Two JTF Request for Information Managers served on each shift to process requests for information from subordinate organizations and to elevate appropriate requests to the CINC."

· "The extraordinary success that the JTF experienced in handling, analyzing, and providing critical information to the commander can be attributed to four key factors: commonly understood IM processes; employment of a JTF Homepage; accessibility of the commander; and a manageable RFI Process."

B. Dissemination. The task of disseminating information is most difficult. Rapid advances in and unfamiliarity with available technology often cause information to be misrouted or inaccessible, which may result in required actions not being taken. When using web-based technology for disseminating information it is necessary to ensure that the data is not buried too deeply in the system. The following are selected representative extracts from the records examined:

· "Initially, information was difficult to locate on the Homepage. Many documents were filed within the file structure of the originating staff rather than under a topical label. For instance, the exercise IMP was filed on the exercise Homepage under "J3 Current Operations" instead of under "IMP." For staff members who did not know the origin of documents, it took considerable time to locate them."

· "The training audience was very successful in handling, analyzing, and providing critical information to the commander and key decision makers. Information was disseminated and managed through highly effective organizational Homepages. The headquarters and each component had a Homepage, as did each subordinate agency. Pull-down menus were used to access documents in sub-pages, and hot links were used to access priority information. Users selected a specific section of a Homepage and followed a "thread" to post or obtain information. The Homepages were

user-friendly and creatively designed so information was not buried under layers of directories."

· "Worthy of specific note was the command emphasis on IM. At the outset, the commander emphasized his concern for accessing critical decision-making information from the anticipated vast accumulation of general information and data. His guidance was clear - the Homepage should not become a huge and cumbersome electronic filing cabinet. The exercise offered an excellent opportunity for the staff to employ their IMP processes and their principal IM tools, such as their JTF Homepage and RFI process."

· "Using the Homepage as the primary means of disseminating information, the training audience was exceptionally effective in handling, analyzing, and providing critical information to the JTF commander and key decision makers."

· "JTF information managers had to constantly review, evaluate, and prioritize information on the web pages to ensure that information was current and not buried under layers of directories."

· "While the Homepage process for rapid posting of critical, time-sensitive information was a major contributor to the JTF's success, it also is vulnerable. The Homepage is a technological tool that consists of computer and network equipment, necessary software programs, trained operators, and knowledgeable managers. Without all of these parts, there is no Homepage IM tool. The back-up plan, in the event of Homepage outage due to loss of network service or software corruption, consisted of a combination of data fax, secure telephone, and courier service."

· "Web-based technology does not replace active C2. Due to a well-researched and executed IMP as well as effective functional training, the training audience was extraordinarily successful in handling, analyzing, and providing critical information to the commander and key decision makers. In general, the Homepage was user-friendly and creatively designed so as not to bury information under layers of directories. However, while the Homepage was an excellent tool for rapidly posting information, there was often an incorrect assumption that posted equated to disseminated and that information posted was the same as information fully disseminated. JTF staffs and components should bear in mind that posting information on a web page is a form of passive communication and does not eliminate the requirement for active personal confirmation of receipt and understanding."

C. Access. Access and security issues also hinder execution of a good IMP. In exercises and operations that include allies and coalition partners, problems often arise with gaining access to US systems. The following are selected representative extracts from the records examined:

· "Security managers need to provide guidance to information owners regarding the specific information that can and cannot be passed to allies. When staff members post releasable information to the US network, they need to identify it immediately to the gateway administrator for posting to the allies. There needs to be a method for coalition members to make their information requirements known to the IMO, and the IMO should have an expeditious process to determine how to best to meet those requirements."

· "Recommend that the CINC further develop and document information management processes. It is vitally important that procedures be standardized and practiced to achieve a smooth transition to unified operations under the IMO, and to integrate augmentees, liaison, and coalition members into the IMP."

· "A final issue raised under this theme related to the security implications resident with the use of Global Command and Control System (GCCS). In multinational/coalition operations, filtering of information to our allies will be necessary since they will not be cleared for GCCS access."

CONCLUSIONS

· Success of a joint force headquarters is based on how well they use available information and assigned personnel. A workable IMP and a qualified IMO are key to a successful operation.

· Dissemination of information can be efficiently handled through the use of web-based technology, but care must be taken to ensure that all concerned are aware of where it can be found.

· JTF commanders, staffs, and IMOs struggle with providing US operational information to allies and coalition partners.

JCLL BULLETIN DELIVERED TO YOU ELECTRONICALLY!

The JCLL Bulletin is now available through electronic subscription and distribution to approved subscribers. Currently, it is only available on the Non-Secure Internet Protocol Router Network (NIPRNET).

Users within the jfcom.mil: There is no need to register for a Webgate account. You have three options to access the sign up: first option, you can go to the JWFC Staff Working Area and under 'Research,' locate the link for JCLL and click the button for JCLL Bulletin; or, second option, under the sub-heading 'Publication' (also under 'Research'), locate the link for the JCLL Bulletin; or, third option, under 'JDLS Work Areas,' locate the link for JW4000 and click the button for the JCLL Bulletin.

Once at the JCLL Bulletin page, you will see the subscription link. Click on the link, fill out, and submit the subscription form.

You will be notified via e-mail when your subscription registration has been approved (if your request must be manually approved). The next time the JCLL Bulletin is distributed against the JCLL list of subscribers, you will receive e-mail with the latest Bulletin attached.

Users outside the jfcom.mil: You will need to register and be approved for a JWFC Webgate account. The Webgate account allows you to access the JCLL web site and thus submit the subscription request. Go to the unclassified web site by the following URL: http://www.jwfc.jfcom.mil/jcll/ The webgate page for the NIPRNET will open and you may select "Account Request" from the left side of the page.

When filling out the information needed to obtain a Webgate account, you will be asked for a sponsor/POC and a purpose for the request. For the purpose of obtaining an electronic JCLL Bulletin subscription, please use Mr. Al Preisser as the sponsor/POC.

Once a Webgate account has been established, you will need to visit the same URL above and click on the purple button in the middle of the page, "Registered Users." After reaching the JCLL homepage, click on the link for "JCLL Bulletins" and you will see the subscription link on the JCLL Bulletin page. Click on the link, fill out, and submit the subscription form.

You will be notified via e-mail when your subscription registration has been approved (if your request must be manually approved). The next time the JCLL Bulletin is distributed against the JCLL list of subscribers, you will receive e-mail with the latest Bulletin attached.

DEPARTMENT OF DEFENSE

COMMANDER
USJFCOM JWFC CODE JW 4000
116 LAKE VIEW PKWY
SUFFOLK VA 23435-2697

OFFICIAL BUSINESS